COMMODORE user

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Vic Computing

May 1985
Price 95p



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C128 – FIRST REVIEW

WHICH PRINTER FOR YOUR 64?

HAPPY HACKER

NICKED

GAMES GALORE! C64 – C16 – Vic

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COMMODORE user

MAY 1985

Cover: Ivan Allen









REGULARS



PEOPLE

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First issue April 25



MICRO CHALLENGE . . . the first computer-age puzzle magazine

On sale every month at all good newsagents, price £1

No, not another computing magazine.

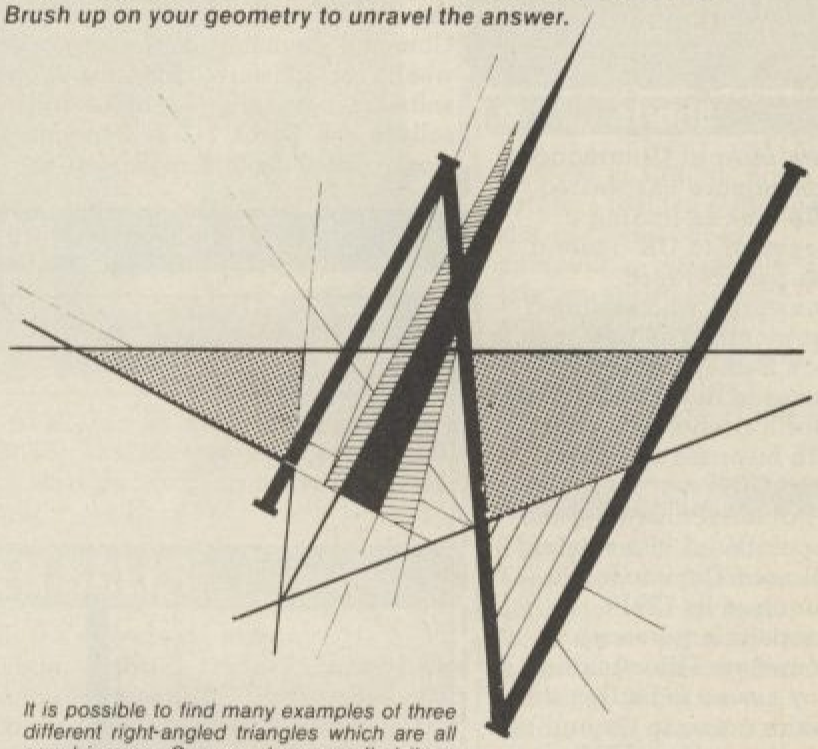
Micro Challenge is unique. Colourful and exciting, it's packed with intriguing puzzles — and prize competitions — devised specifically for microcomputer owners.

WIN A COLOUR TV!

This is an example of one of the many types of puzzle to be found in Micro Challenge — but it's also your chance to win a superb JVC portable colour television with remote control. Solve the problem, using skill, judgement and your own micro, then send the solution, on one of the prize puzzle entry forms from the May issue of Micro Challenge, to the address given in the magazine, marking the coupon AP1. (A proper form must be used; no photocopies or facsimiles are permitted). The competition closes first post on May 16, 1985, and the first correct entry opened wins the prize.

TRIANGLE TANGLE

Brush up on your geometry to unravel the answer.



It is possible to find many examples of three different right-angled triangles which are all equal in area. Can you, however, find three such triangles for which every side is a whole number of units (an integer)? Try to devise a program to find the trio with the smallest possible area.

WORKSPACE

TARGET TIME 25 MINS. YOUR TIME........

NEWS

HACKER NICKED

Commodore User's Happy Hacker has been arrested and charged with offences under the 1981 Forgery and Counterfeiting Act. Robert Schifreen appeared in Bow Street Magistrates Court and was remanded on unconditional bail until June 12. British Telecom, prosecuting, asked for this much time because of the wealth of technical information to be gathered together. Another man, Steven Gold, author of Micronet's Micromouse column, was also remanded on unconditional bail under similar charges. *Commodore User* will keep you informed of the developments of what is the first case of its kind in this country. The hacker's column will appear as normal but someone will sit in for Robert until further notice.

COMMODORE LAUNCH PERSONAL COMPUTER

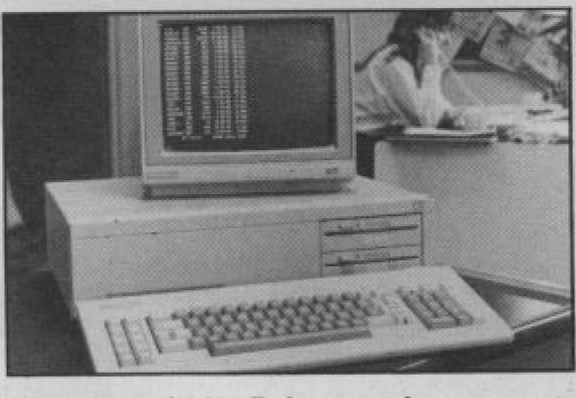
The faces of Commodore bigwigs were set in 'determination' mode for the UK launch of the new Commodore Personal Computer, the confident slogan on everyone's lips being, "the price is right", even though the time may not be quite right.

The Commodore PC is designed to compete directly with the IBM PC and the numerous PC compatibles that have virtually sewn up the lucrative business computing market. With it, Commodore clearly hopes to re-establish its flagging position in the business market now that the 8000 series (Pet) has joined the geriatric league.

So what are the PC's prices? There are two models: the **PC10**, complete with monochrome monitor, twin 360K floppy disk and 256K RAM (expandable to 640K), costs £1,675, whilst the **PC20**, the same machine but with a 10Mb Winchester and only one disk drive, costs £2,795. And that, according to Commodore, undercuts the competition by around 25 per cent — so nobody but Commodore should be laughing.

IBM Software Compatibility

The PC is the first Commodore product to offer the industry standard MS-DOS operating system, the standard Microsoft format for its disks and the much-used Intel 8088 16-bit chip. That means programs written for the IBM PC will run without problems on the Commodore machine, thereby opening up a wealth of software. Already, Commodore's software catalogue includes business best-sellers like Lotus 1-2-3, Symphony, Framework, WordStar, Supercalcs 1, 2 and 3,



dBase 11 and 111, Delta — and many more.

So Commodore has done its homework, realising that to complete in this market the goods have to be cheap for the customer and sufficiently attractive for distributors and dealers to stock. Apparently, five major distributors are already taking machines and sales are expected to reach 6,000 per month over the next three month period in Europe. The PC will also sell in USA and Canada. Incentives for buyers and dealers include an optional three-year warranty (not free), leasing and finance arrangements, and a network of Regional Service Centres.

There's no doubt, the PC's prices look good, especially for the entry-level model, but whether it will grab a slice from IBM and from compatible makers like Compaq, Olivetti and Japan Inc., remains to be seen. Given the amount of money it's spending, Commodore certainly seems convinced, regarding the PC as only the start of a business venture that should see the appearance a Unix-based Z8000 machine by the end of this year.

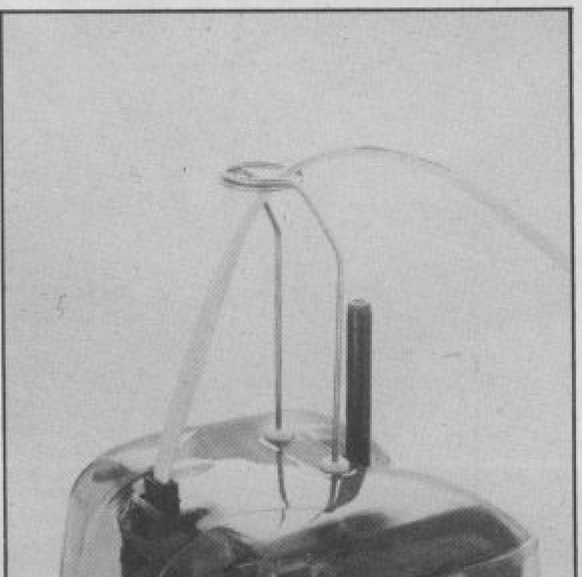
Shorts

New man at Commodore: Commodore has wasted little time in finding a successor to UK general manager Howard Stanworth, who resigned last month. The new man is Nick Bessey, 36, who moves to the wilds of Corby after a twelve year stint with business computer giant IBM.

Not coincidentally, his appointment immediately followed Commodore's launch of its IBM-compatible personal computer. The cunning ploy seems to be that if you're going to try and rip the carpet from IBM's feet, you should use someone who used to stand on it.



ROBOT INVASION



A London based firm has announced a Commodore compatible robot for under £100. **Zero 2**, made by the ambitiously named *Intergalactic Robots Ltd*, connects to the 64 via a standard 'D' type connector and sells for £99.95 assembled, and £79.95 as a kit.

The robot is a small buggy or turtle type device equipped with wheels, pen, lights, line follower and a two-tone horn. It is connected to the computer with a 4mm telephone type cable and is flexible as regards language.

Intergalactic Robots claim a high degree of manoeuvrability for the device with turning motions to accuracies of 0.1mm, or one degree. A spokesman said that it was already selling well in many Scottish schools and hoped that it would soon be installed in most English ones as well.

Whilst Zero 2's main application is educational, Intergalactic hopes it will be of used in the home, and claims it is capable of watering plants whilst you're on holiday, playing with the baby or the cat (let's hope it knows which is which!) or even as a dress-making aid, transposing dress patterns to size. Games applications are also intended. Contact Intergalactic Robots on 01-359 2536.

EARLY SUPPORT FOR 128

Chastening experience with machines like the Sinclair QL has alerted the computer industry to the truism that you stand little chance of selling your latest wonder-micro unless a modicum of software is available at launch time. Commodore has taken this lesson to heart with its C-128.

Many weeks before its launch, software producers like Audiogenic, Precision and Thorn EMI have announced that they're working on C-128 products. Trouble is, there's nothing really exciting on offer, most of the products being conversions of business programs.

Audiogenic, for example, sent one of its boffins to Commodore's Slough offices to convert the Micro Swift spreadsheet, originally for the Commodore 64, to take advantage of the 128's 80-column display. Its maximum number of rows has also been increased to 999. No prices yet but, considering that the 64 version costs a mere £19.95, it shouldn't bust your pocket. According to Audiogenic's Henry Smith, Audiogenic's other business products will soon get the same treatment. Similar 80-column conversions of Easy Script and Superbase are also due from Precision Software.

Thorn EMI has announced that it's converted the American 'Perfect' series of business software, which also runs on the IBM PC, to run on the 128's Z80 processor under CP/M. The series, comprising Perfect Writer, Perfect Calc and Perfect Filer, is fully integrated, allowing the sharing of data between programs, and featuring the latest of split-screen wyndows and pop-up menus. No prices yet, though.

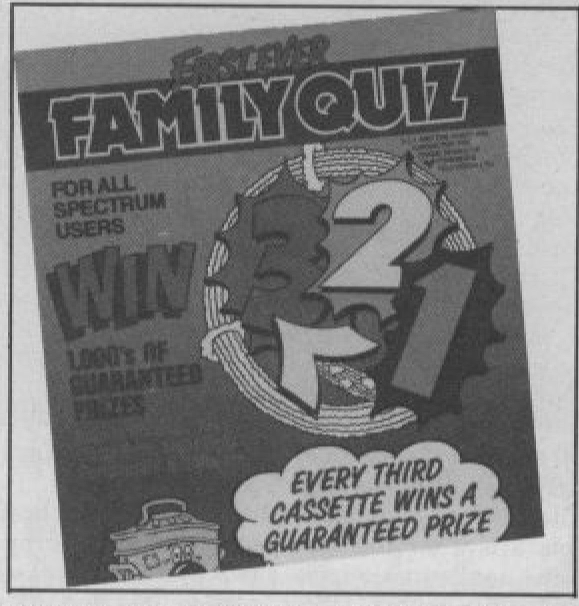
From Commodore itself, there should be a series of disk-based games (including adventures) that include versions for both the 64 and 128. According to Commodore's Gail Wellington, it should help to cut costs and provide cheaper software.

IN THE BIN

I'm at a press launch and someone at the far end of the room is making bad jokes and nobody's laughing. Seems there's a new quiz game for the 64. Wait a minute, if the jokes are bad, and it's a quiz and the joker is Ted Rogers, it must be (fingers fumble) **3-2-1!**

Yes folks, Dusty Bin has come to the home computer market. The game, published by Micro Computer Incorporated, gives you the chance to win lots of prizes just like the real thing.

The star prize is nothing less than a week's holiday in Spain. There's lots of other goodies as well, including colour TVs, bicycles, peripherals and cuddly toys — sorry wrong game, no cuddly toys. To win you have to complete the game, download your score and send it back to the company. It's supposedly secure, which is like waving a red flag to all those hackers.



The other original feature of the game is that you won't see any advertisements in the press for it. Its campaign is based totally on television advertising, and, like those duff records, available by mail order only, at a cost of £9.95. There's a review coming next month, so start swotting up on your general knowledge.

OF MICE AND TRACKER BALLS



The SMC Mouse is now available from Barnet-based SMC Supplies. Designed for the Commodore 64, it plugs into one of the joystick ports.

At £59.95 it's somewhat pricey, but includes graphic software that offers the usual drawing features, plus a sprite and graphic designer, and a screen-dump utility to a Centronics printer. Running your rodent across a flat surface produces corresponding movement with the on-screen cursor.

Meanwhile, Central Trade Exchange has launched the Marconi RB2 Tracker Ball, also for the Commodore 64. The on-screen cursor is controlled by fingertip operation of the central ball. Like the SMC Mouse, the RB2 includes sophisticated graphics software and, at £59.95, is identical in price. It also includes software that lets you use the device in your own programs. More details from SMC on 01-441 1282 and from Central Trade Exchange, 0582 64334.



• Shorts •

Evil for the C-16: Remember the *Tower of Evil* game for the Vic-20, you know, the one in which you rescue the fair Princess Diana from the Necromancer? Creative Sparks has now released a "greatly enhanced" version for the C-16. Costing £5.95, CS rashly claims it's "easily the best game written so far for the C-16". Hm — we'll be reviewing it soon.

• Shorts •

Wordprocessing taped: Audiogenic's stalwart *Micro Wordcraft* program is now available on tape, complete with Novaload, for all those 64 owners who need a professional-quality WP package but can't afford a disk drive. The package retails at £24.95 and should be available at branches of Smiths, Boots and Laskys.

• Shorts •

Alphacom goes cheap: Dean Electronics, UK distributors of the *Alphacom* range of printers has announced drastic price cuts as part of a special offer. The Alphacom-42's price is slashed from £99.95 to £49.95. And the Alphacom-81 is dealt with just as ruthlessly, cut from £139.95 to £79.95. Both printers feature a unique slot-in Commodore compatible interface which lets you reproduce the complete Commodore graphics set. You'll find more details in the printer/interface article in this issue.

• Shorts •

Cheap thrills for Vic: There may be hope for dedicated Vic owners, since a new software house, *Atlantis*, is offering two Vic games at £1.99 each. Before you get too excited, both offerings look to be old and mouldy. There's Super Breakout (something to do with knocking a ball against a wall?) for the unexpanded machine and Death Race, a car racing game for the Vic with 8K expansion. For the price of a Big Mac and fries, they're probably worth a spin. More details on 01-226 6703.

PROFILE: "WILD BILL" STEALEY

This month Eugene Lacey faces the flak from American flight program ace Wild Bill Stealey, a man with an ego that matches the quality of his flight simulation programs for Microprose: Solo Flight *and* F 15 Strike Eagle.

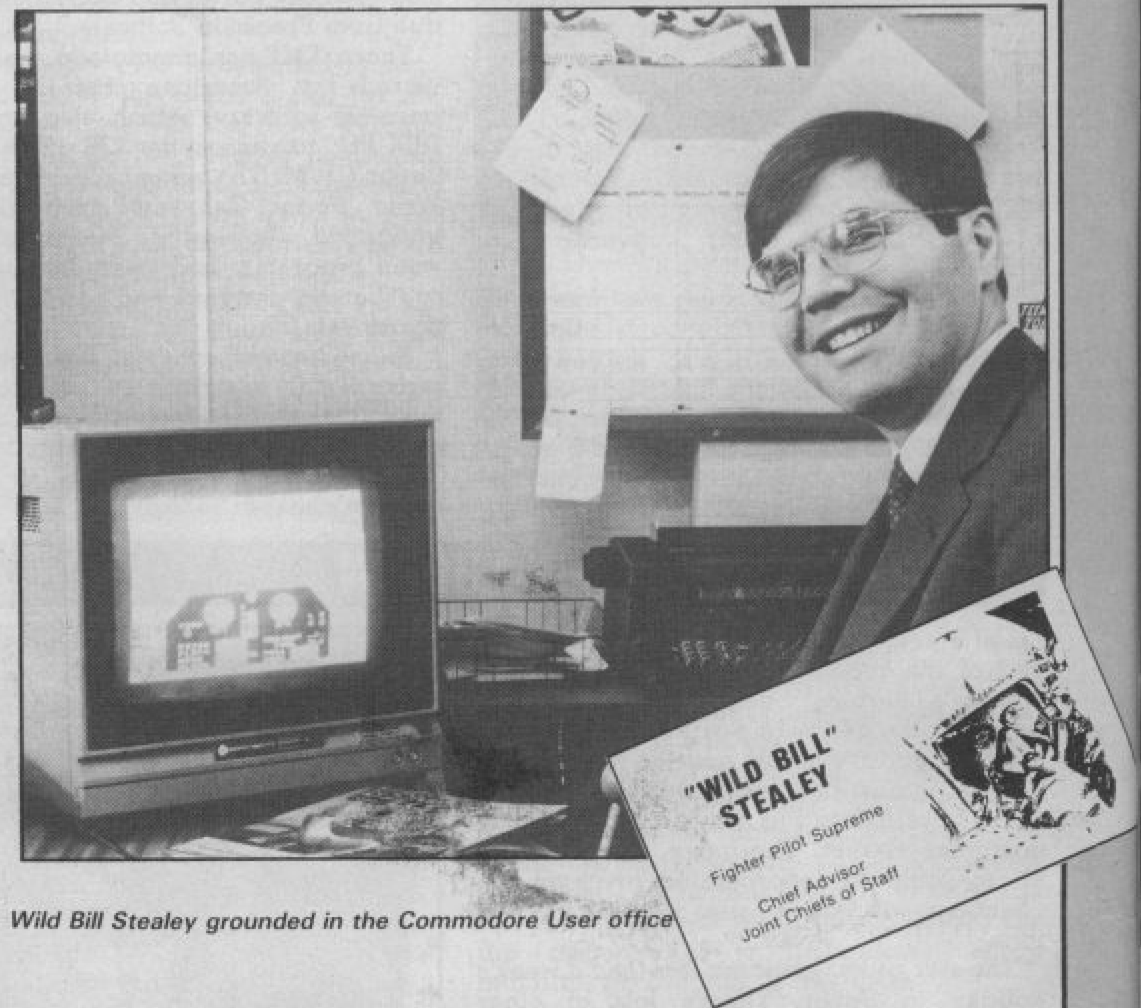
A couple of minutes in Wild Bill Stealey's company is enough to stop you wondering how he earned that nickname.

"See that," he bawled, tapping the largest ring I've ever seen on my desk, waking up the technical experts in the Commodore User offices, "that's a genuine American Airforce Fighter Pilot's Ring. Do that in a bar room in the States and you get instant service . . . they know you're a fighter pilot."

Wild Bill lives in Hunt Valley, Maryland, with his wife and their three children. Despite his impressive USAF background he will be best known to most Commodore users as the author of *Solo Flight* — America's best selling flight simulation for the 64.

The success of Solo Flight prompted Stealey's company to launch a flight simulation closer to Wild Bill's heart — *F15 Strike Eagle.* This is based on one of the most advanced fighters currently in service with several air forces around the world.

Stealey has so much confidence in Microprose that he could easily persuade you that they were the only software house in the world. It's only when you pinch yourself a couple of hours later that you remember there are some other good companies in the US: Epyx, Activision, Access to name only three.



Wild Bill Stealey grounded in the Commodore User office

The main thrust of the Wild Bill sales talk is reserved for F15 — clearly his favourite simulation. As far as Stealey is concerned the only real pilots are fighter pilots. What about airline pilots, I ask? "Bus drivers", says Wild Bill. Alright then — what about the pilots who talk endlessly about the freedom, the solitude and the spiritual experience of flying?

"You wanna talk spiritual? I'll tell you what's spiritual . . . flying upside down in an F15, doing Mach 1.5 high above the Rocky Mountains, with the sun behind and the Pacific Ocean ahead of you . . . that's spiritual . . . the rest is just sight-seeing."

"Whooosh", says Wild Bill, thrusting his hand through the air to illustrate the point.

Like most good American software houses, Microprose launches less products per year than its UK counterparts and takes longer developing them. "We offer quality software and quality software takes time to develop — in the case of *Solo Flight* about nine months, and *F15*, a year."

Microprose develop all their programs in teams. Stealey is chief designer and ideas man, Sid Mayer is the programming brains. A Washington lawyer writes the manuals.

It's important to get a legal brain in on the documentation of Microprose simulations. Particularly when they are about USAF planes like the F15, as these have to be cleared with the authorities before they can be put on sale. "All the information in the software and in manuals that are sold with them needs to be non-classified . . . I am very particular about that," says Wild Bill, assuming a very serious tone of voice. This would of been fine if he had not let it slip that the Russian Embassy in Washington still bought four copies of the game the day after it went on sale.

But if the Russians can find out anything useful about the F15 it probably won't be of much use to them learning about Microprose's other flight simulation — *Spitfire Ace.*

"It's probably the most romantic fighter that has ever been", says Stealey, "the idea to do the game came from England, and we are very pleased that we did it."

Microprose's Spitfire game has now been challenged in the shops by Mirrorsoft's *Spitfire 140* — and a comparison is published in this month's Screen Scene. Comparisons are something that Wild Bill is very keen on and he has done one himself between *F15 Strike Eagle* and Digital Integration's *Fighter Pilot.* Needless to say the Microprose game comes out on top. According to Stealey's calculations — fifteen authentic F15 details to three in Digital's game.

But if flight simulations have been the mainstays of the Microprose range for the last year they certainly won't be the only products launched by Stealey's team this year. Other hot titles to look out for are *Solo Flight II* — with lots of new features, *Kennedy Airport Approach* — an air traffic control game with some of the best speech I have ever heard on any game including *Impossible Mission*, and two new war-strategy games with historic World War II themes.

To describe Wild Bill Stealey as a brash American has got to be the understatement of the century. But love him or loath him you can't help thinking that with this guy in the cockpit, Microprose are going to be piloted to a successful future.



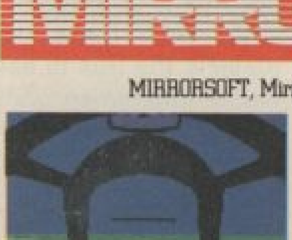
THE BEST THING SINCE THE REAL THING

A Spitfire flight simulation set in 1940. Ground features and realistic air combat.

Spitfire'40 is available from W H Smith, Boots, Spectrum and good software stores everywhere.

MIRRORSOFT

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Now you can use your Commodore 64 to write a letter or a report, to compile a mailing list or classify your record collection, to check your bank statement or sort out your family finances (and then translate them into colourful graphics) . . . all for just £5.95.

Quick to learn, easy to use, that's

MINI OFFICE marks a long-awaited breakthrough in dramatically reducing the cost of personal computing.

For the first time it makes available to everyone an easy-to-operate version of four of the most popular business computing applications – and at a price anyone can afford.

Never before has a word processor been sold for anything as low as £5.95. Nor a database manager. Nor a spreadsheet. Nor a graphics program.

Yet Mini Office contains them all.

So how was it done?

It all started with a suggestion that we should prepare a package to give readers a gentle introduction to the kind of software that businesses were running on their computers.

At that stage there was no intention that it should be an ambitious package. Just a simple program that could be sold at a very low price.

We called in experts in business software programming, told them what we wanted and sat back to await results.

What happened next was totally unexpected. For they all came back with ideas that were to considerably expand our original brief.

In the end what had been planned as little more than a beginners' guide to word processing, database management, spreadsheets and graphics had been turned into a full scale suite of programs covering all four applications.

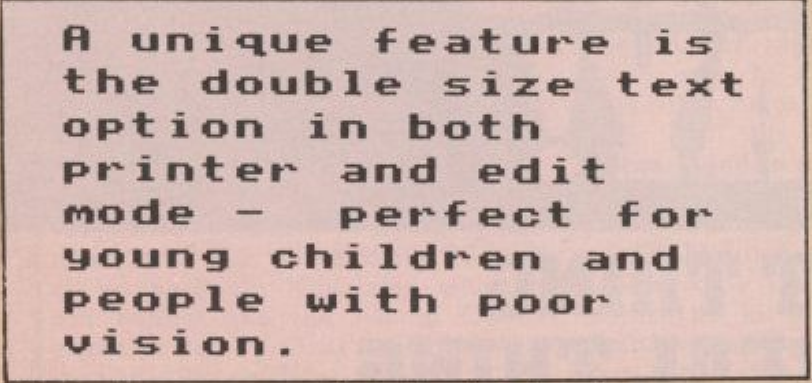
In fact the only part of the brief that remained was our original insistence that the package should be quick to learn and easy to use.

And despite all the extra sophistication that has been written into it, we decided that, as a service to our readers, the price should still be kept at the very low figure originally fixed.

How does Mini Office operate?

Using the **Word Processor** is simplicity itself. There are none of the cryptic coded instructions that had to be mastered by people learning the early word processors.

You start by selecting the size of type you prefer – either normal or double-size. The latter is a feature that you cannot find on any other word processor.



The word processor – with double size characters

It is particularly suitable for the partially sighted – in many cases giving them their very first opportunity to use a word processor.

This means they can use a micro to compose a letter, using the double-size mode, and then print it out using normal size type. For many people this could be the first time they can send out a perfectly typed letter without outside help.

Primary school teachers are also expected to make great use of the double-size function, both on the screen and on hard copy printouts.

While you are using the word processor three useful pieces of information are displayed across the top of the screen.

They tell you how much time has elapsed since you started using it, the number of words you have written so far, and how many characters you can key in before the computer's memory is full.

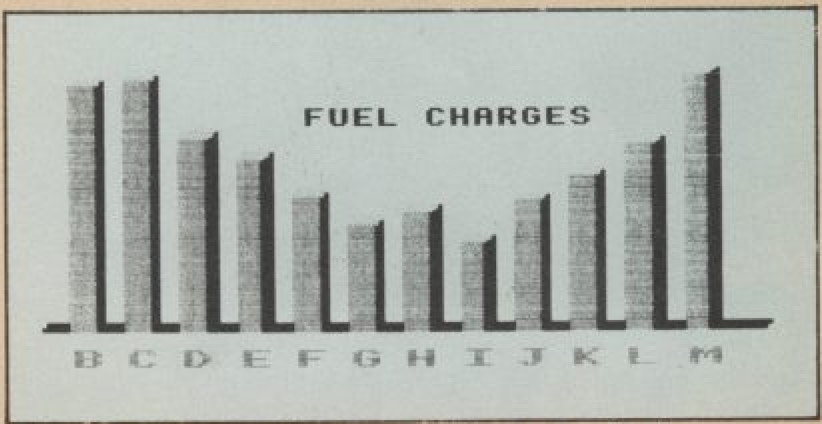
At any time you can press a key which tells you your typing speed. This is a most useful function, and can play an important part in increasing your efficiency at the keyboard.

You can also decide the size of the margin, the line length and the tab positions. Text can be moved from one part of the document to another.

At any time you can preview the text to see how it would look when printed out.

As with all the other programs in Mini Office, your work can easily be saved and loaded when you want to use it again. It can also be printed out.

The **Database** program can be used to store a mass of information. It can be retrieved, in its entirety or just the parts you require for a particular purpose, whenever you need it.



Figures on the spreadsheet can produce a bar chart . . .

The operation is so simple that a useful database can be created in minutes rather than days – and you certainly don't need any computer experience to set it up.

The powerful search facility is very easy to use. You can search for a particular word or words or you can order a numeric search – such as telling the computer to find all the numbers greater or less than the one you provide.

You can carry out multiple sorts. For instance, if you have built up a mailing list containing a list of names, addresses, telephone numbers, occupations and ages you can ask the database to provide you with a list of teachers living in Liverpool whose ages range from 25 to 30.

One powerful option allows you to replace anything on the database without having to go through the whole lot making amendments yourself. You could, for instance, instruct it

Now on the Commodore 64



to find each reference to "teacher" and replace it with "lecturer".

The **Spreadsheet** is our version of the program that marked a milestone in business computing – Visicalc.

It is often pointed out that this one program alone has helped to sell more personal computers than any other.

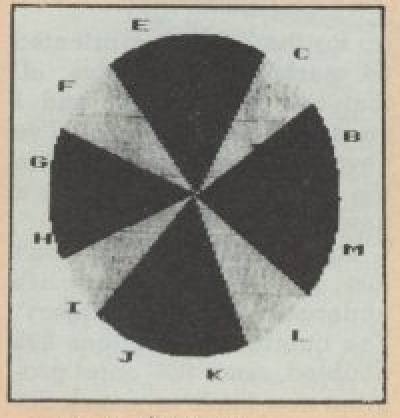
Certainly Visicalc and its derivitives have never been shaken from their position at the top of the list of best-selling business programs.

Yet the concept is very simple – a giant worksheet of rows and columns, only part of which can be seen on your screen at any one time. Into any position on the sheet you can put numbers, labels and mathematical formula.

And when you alter any figure its effect ripples through the rest of the sheet, changing any totals as may be necessary.

The Mini Office version is ideal for home finance, providing you with an effortless means of keeping tabs on your income and expenditure – and enabling you to work out your own budget.

In our Spreadsheet program – as well as in the Database – we have provided



. . . or a pie chart

a sample file so that you can experiment with it before entering your own data.

One feature we have included which to our knowledge does not exist in any other spreadsheet is a warning device to prevent you accidentally erasing formula – a very useful precaution.

The **Graphics** program uses the standard business graphics – line, bar and pie charts – in full colour. Which is something not always available on far more expensive graphics packages.

The program uses data you have already prepared on the spreadsheet. You have to identify which set of information you require to see in graph form – such as by indicating which row or column – and then which of the graphs you require.

The graph is then automatically configured exactly as you require it. If you have suitable printer capable of producing graphics you can also print out hard copies for a permanent record.

Because our original intention was to produce a package for people new to all these applications, we have produced a fully-detailed, easy to understand manual.

This 32 page free booklet gives clear instructions about how to use all four programs and in itself forms a concise introduction for first-time users.

If you want to start doing more with your micro than just playing games, this package is your ideal introduction to the four most popular applications for professional computers.

● *Graphics illustrated here are from the Amstrad version and are slightly different on the Commodore version.*

Send for it today

Also available from Comet, Currys, Dixons, Greens, John Menzies, Rumbelows, Boots, W.H. Smiths, Laskey's and other computer stores.

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CU5

ADVENTURE



This month John Ransley becomes a convert to the spectacularly good new disk version of The Hobbit and hands out a few tips on the game, as well as a routine that will put random responses into an adventure program. There's some more American titles previewed plus news, a competition and the readers' chart. By John Ransley

Breaking the Hobbit

I have a confession to make. I've never conquered **The Hobbit**. To be absolutely truthful, I've never really explored that deep into the adventure which has, over the past couple of years, sold in the region of one-quarter of a million copies.

This may be a kind of inverted snobbery on my part — but I put it down to a desire not to grow old at my keyboard. For a start, the early versions of the game didn't have a fast loader — though the ones now on sale do. Secondly, the graphics — brilliantly innovative when Bilbo and his friends shone through the video tube at us — now seem a little unsophisticated (and desperately slow) by comparison with second generation graphic titles such as Eureka! and The Lords of Midnight.

Hobbit on disk

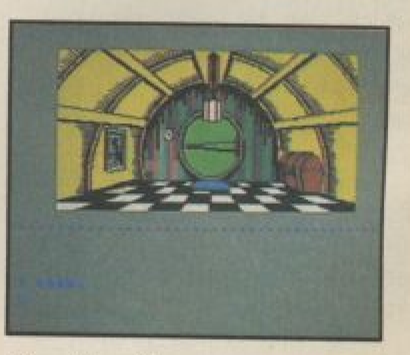
But now, thanks to the decision by Melbourne House to go for the huge disk-oriented 64 market in the States, all that has changed — and I swear to Gollum that I've never enjoyed myself more in the first hour of exploring a new adventure.

The Hobbit on disk hasn't just had a facelift — it's undergone major surgery. The number of locations has doubled, and the core program now loads in just a couple of minutes. Then you flip the disk to access the graphics files, so that as you progress through the game, a new illustration is read from the disk and zips into memory in just a few moments. And what a splendid library of graphics it is; the detailed and richly-coloured screens add a totally new dimension of appeal and come very much nearer to the quality that a Tolkein-inspired fantasy surely deserves.



Meet Condor — star of Activision's first adventure — *see page 14.*





The old and the new. Top shows the old opening screen of the Hobbit and below the new souped-up disk version.

• COMPETITION •

Not only did Napoleon Bonaparte fight great battles but he also knocked up a terrific brandy. Trouble is, Josephine wasn't the only person he couldn't keep happy, and he died six years after his defeat at Waterloo in 1815.

But where exactly did he die? Was it in exile in Elba, imprisoned on St Helena, or in exile in England? Choose the right answer and you could win this month's double prize of Quicksilva's two newest animated adventures from the States — **Dungeons of Ba** and **Castle of Jasoom**. So just write your answer on the coupon below, add your name and address and the titles of your three current favourite adventures (you don't have to enter the competition to vote) — then mail it right away to the address shown at the bottom.

NAPOLEON'S PLACE OF DEATH WAS ....

Name..

Address ....

....

My three favourite adventures are:

1...

2...

3...

Send your entry to Napoleon Competition, Commodore User, 30-32 Farringdon Lane, London EC1R 3AU.

• CHARTS •

1	The Hobbit (Melbourne House)
2	Castle of Terror (Melbourne House)
3	Eureka! (Domark)
4	Sherlock (Melbourne House)
5	Zork III (Commodore/Infocom)
6	Return to Eden (Level 9)
7	Colossal Adventure (Level 9)
8	Twin Kingdom Valley (Bug-Byte)
9	Snowball (Level 9)
10	Spiderman (Adventure International)

A particularly pleasing feature of The Hobbit — and it's a pleasure doubled in this new version — is the number of locations it's possible to explore without being blocked by some seemingly insurmountable puzzle too early on (with the exception of those trolls — about which, more later). Me, I usually surrender at the first threat of any intellectual confrontation — but The Hobbit on disk allowed me to explore one imaginatively illustrated location after another.

Of course I could have delved deeper into any of them and stopped to chat with Gandalf or Elrond — and then I would have begun appreciating, too, the real brilliance of Philip Mitchell's full-sentence interpreter. But for this first taster, there was fun enough to be had in just exploring the game's visual delights — as well as enjoying the very listenable music score that is another welcome special feature of this new version.

At £17.95, The Hobbit on disk, it's true, is only £3 more than its now inferior counterpart on tape. I guess the thinking is that if you can afford a disk drive, you can afford pricier games. I wonder about that. I would have liked to have seen this stunning new version sold a couple of pounds cheaper, together with a long-overdue cut in the price of the tape version. Not because I dispute for a moment that it's worth every penny of the price that's asked, it's just that something this good should have the chance of reaching the widest-possible audience — and in the UK at the moment, that audience is very price-conscious.

Handy tips

Skip this item if you mean to play The Hobbit and don't want an easy start. I don't usually give playing tips in this column but the wretched trolls soon met in The Hobbit can be very discouraging and may deny you an early opportunity to explore lots of interesting locations. Here's how to defeat them. After you've left the tunnel hall, go east and east again — and you'll arive in the trolls' clearing. The mistake is to stand your ground. Instead, go north and wait, wait and wait again by the stone door until dawn breaks. Then return south to the clearing and you'll find the trolls have turned to stone.

Good response

Readers' letters suggest that I'm not the only one who can't abide adventures which don't incorporate just a little personality in their 'puppets'. *Valkyrie 17* is a good example of a recent title that doesn't fall into that trap; enter a silly or illegal command and you'll get any one of several random responses rather than the same old "You can't do that" every time. It's an effective bit of gloss on what is anyway an above average adventure — and one you can easily incorporate in your own Basic programs using a simple routine such as this:

```
100 INPUT "WHAT
NEXT";R$
110 :
120 REM USUAL IF . . .
THEN TESTS GO HERE
130 REM BUT IF INPUT IS
UNACCEPTABLE . . .
140 :
150 GOSUB 500:GOTO 100
500 X=INT(RND(1)*3) + 1
510 ON X GOTO 520, 530,
540
520 PRINT "THAT'S JUST
NOT POSSIBLE" : RETURN
530 PRINT "SORRY – YOU
CAN'T DO THAT HERE" :
RETURN
540 PRINT "YOU'VE GOT
TO BE CRAZY!" : RETURN
```

Customised responses can also add elegance when, for example, players find themselves arriving at a location they've visited before. In even the best commercial adventures you'll find, very often, that the program will treat the returning visitor like a complete stranger. This bug can be easily overcome with another short routine:

```
100 R$(1)="INFORMS":
R$(2)="REMINDS":
R$(3)="AGAIN REMINDS"
110 X=1
120 PRINT "[CLR SCREEN]"
130 INPUT "WHERE
NOW"; R$
140 IF R$="N" THEN 500
150 GOTO 130
500 PRINT "YOU FIND
YOURSELF IN THE"
510 PRINT "TOWER OF
ALCHEMY."
520 PRINT "THE
ALCHEMIST" R$(X) "YOU
THAT"
530 PRINT "SOME MAGIC
POTIONS ARE HIDDEN
HERE."
540 X=X+1: IF X>3 THEN
X=2
550 GOTO 130
```

You'll find, of course, that the routine starting at line 500 will only be called if you enter N and hit Return. But no matter how often you travel S, E or W in between, you'll get a different response the first three times you venture N — and on subsequent visits the response will toggle between messages R$(2) and R$(3).

American dream

In the good old days before the £1 dollar I would occasionally treat myself to one or two of the better American

• ADVENTURE NEWS • ADVENTURE NEWS • AD

• **Spectacular graphics:** icons, and keyboard, joystick or even lightpen response are among the advanced features of *Shadowfire* — a new-style adventure from Beyond, whose 64 version of Mike Singleton's classic Lords of Midnight is already a firm fixture in our Top 10. An advance copy arrived in the Valley as this column went to press — look out for much more about this exciting new title, including exclusive screen shots, in next month's issue.

• **After the critical** success of Erik the Viking, Level 9 are working with Mosaic on an adventure based on Sue Townsend's million selling *Adrian Mole* titles, to tie in with a new Thames TV series planned for the autumn.

• **The Quill** gets better and better with the news from Gilsoft that a 64 version of *The Illustrator* add-on, which creates full-colour graphics easily and then allows these to be incorporated into Quill-generated adventures, will be ready late summer, priced around £14.95. Also, all the titles in their Gold collection of text adventures are now selling at only £1.99.

• **Trevor Hall**, author of the enduringly popular *Twin Kingdom Valley* is putting the finishing touches to his latest graphic adventure which Bug Byte plan to release in the autumn.

• **Dorling Kindersley's** new *Screen Shot* title for the 64, out mid-May, will be devoted to creating the kind of hi-res graphics that could make your adventure a commercial hit. And the Edwardians' answer to Arthur Daley turns up in **Raffles**, a graphic adventure Dorling Kindersley have set for a September launch.

• **Adventures that talk** back feature in the list of a dozen new titles from Step One Software, priced from £9.95 to £14.95 on tape or disk. Phone 0727 40145 for details.

▶

ADVENTURE

micro mags and drool over the ads for the latest adventure titles being launched there. It seems to have taken longer than it should to bring some of the better software to these shores. After all, *Infocom* and *Adventure International* may be the best-known but they're certainly not the only Stateside houses producing very worthy offerings.

Happily, the software arm of W H Smith Distributors are now including in their trade catalogue the products of *Spinnaker* and *Trillium* (renamed Telarium for the UK, for tortuous business reasons), so you can expect to see these hit the high street shelves any minute now.

I've had just the briefest chance to acquaint myself with **Swiss Family Robinson** — a graphic adventure from Spinnaker with some neat and timesaving features to simplify input which the younger player will certainly appreciate. Other titles in the Windham Classic series are **The Wizard of Oz, Gulliver's Travels, Treasure Island, Robin Hood** and **The Wind in the Willows**. All are on disk at £14.95.

The Telarium list is aimed at the more advanced adventurer, and I plan to review **Amazon** next month — a double disk/four sided graphic adventure devised by science fiction author Micheal Crichton; remember **The Andromeda Strain**? First impressions are that Amazon really is something special and I recommend you pester your software dealer for an early sneak preview to judge for yourself. Other titles include **Rendezvous with Rama** by Arthur C Clarke, **Dragonworld, Fahrenheit 451**, and **Shadowkeep**. They all sell at £19.95 — very pricey, but the quality and professionalism of the presentation has to be seen to be appreciated.

Two from Activision

You sure couldn't accuse Activision of going out of their way to sell their first US adventure imports on the strength of their good looks.

For single-disk titles costing £19.99 a piece, you'd expect something a little better than the flimsy cardboard box that **Mindshadow** and **The Tracer Sanction** come in. Maybe Activision still believe that micro adventures are a bunch of weirdos who don't care a toss for window dressing and only buy on word of mouth recommendation anyway.

Still, I've started exploring Mindshadow and have to say that if the game as a whole matches up to the graphics then it's bound to be among the most original adventures I've ever come across; if you could imagine one of the French Impressionists drawing for Marvel Comics, you'll get some idea of the result I'm trying to describe.

Indeed, I'm still trying to fathom out the secrets of Mindshadow's distinctive visual appeal. And wait until you meet Condor — a kind of louche buzzard who'll help you out three times (but only three) each time you play. Frightful price and strangely careless packaging — but the game is definitely growing on me.

Book look

One of the most regrettable repercussions of the subservient pound is the premium it creates in the cost of knowledge. I was browsing through an American computer guide the other day that cost £16.50!

Fortunately, though, Holt Saunders are now marketing titles from a number of leading American publishers under the umbrella — and this means that good titles from DiLithium and the Compute! stable, for example, should be available at slightly more digestible prices.

One I can particularly recommend is Gary McGath's **Guide to Adventure Games** (£10.95), a chunky and very readable 200-page compendium of fascinating facts and hints.

There are chapters on the great adventure houses such as Infocom, Scott Adams and Sierra on-Line, including scenarios of their most famous titles; well-explained descriptions of the programming tricks they use; guidance on writing your own text adventures (with helpful pseudo-code routines which any brand of Basic can handle).

There's also an intriguing chapter on the way in which computer adventures are likely to develop in the future. Gary McGath makes the point that decision-making is intrinsic to adventure games, yet this fundamental element has yet to reach anything like its full potential; after all, he points out, even noughts and crosses offers a possible 362,880 different games . . .

Have you every considered how little use conventional adventures really make of your computer's talent for numeracy? Why don't good computerised wargames and battle simulations — such as the acclaimed Lothlorien titles — enjoy anything like a popular success? Maybe it's because most of us still hold on to the old concept of a wargame being a boring old stomp round a grid.

Well, they're not like that anymore — as Owen and Audrey Bishop's **Commodore 64 Wargaming** (Collins, £8.95) proves most convincingly in its 248 fact-packed pages of know-how, with Basic routines and listings for four full-scale games; a medieval skirmish, a D-Day encounter, a Napoleonic campaign, and a battle in outer space. Even if it doesn't convert you to wargames, you'll pick up loads of techniques which you can use.

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RED SCARE

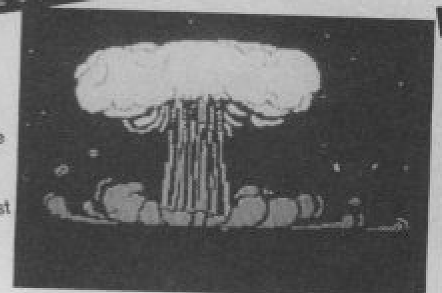


Frederick Forsyth's best selling novel The Fourth Protocol is shortly to be released as a computer adventure.

The adventure is in three parts and casts the player as M15 agent — John Preston — whose task it is to thwart the KGB's Plan Aurora to let off a nuclear bomb in the UK and blame it on slack security at American bases.

Part one features a splendid icon-driven adventure in the style of Beyond's Shadowfire. A screen cursor selects icons representing various actions — files, surveilance, communication via the telephone, three computer VDU's and various other items. Select and implement by placing the cursor over the required object and press fire.

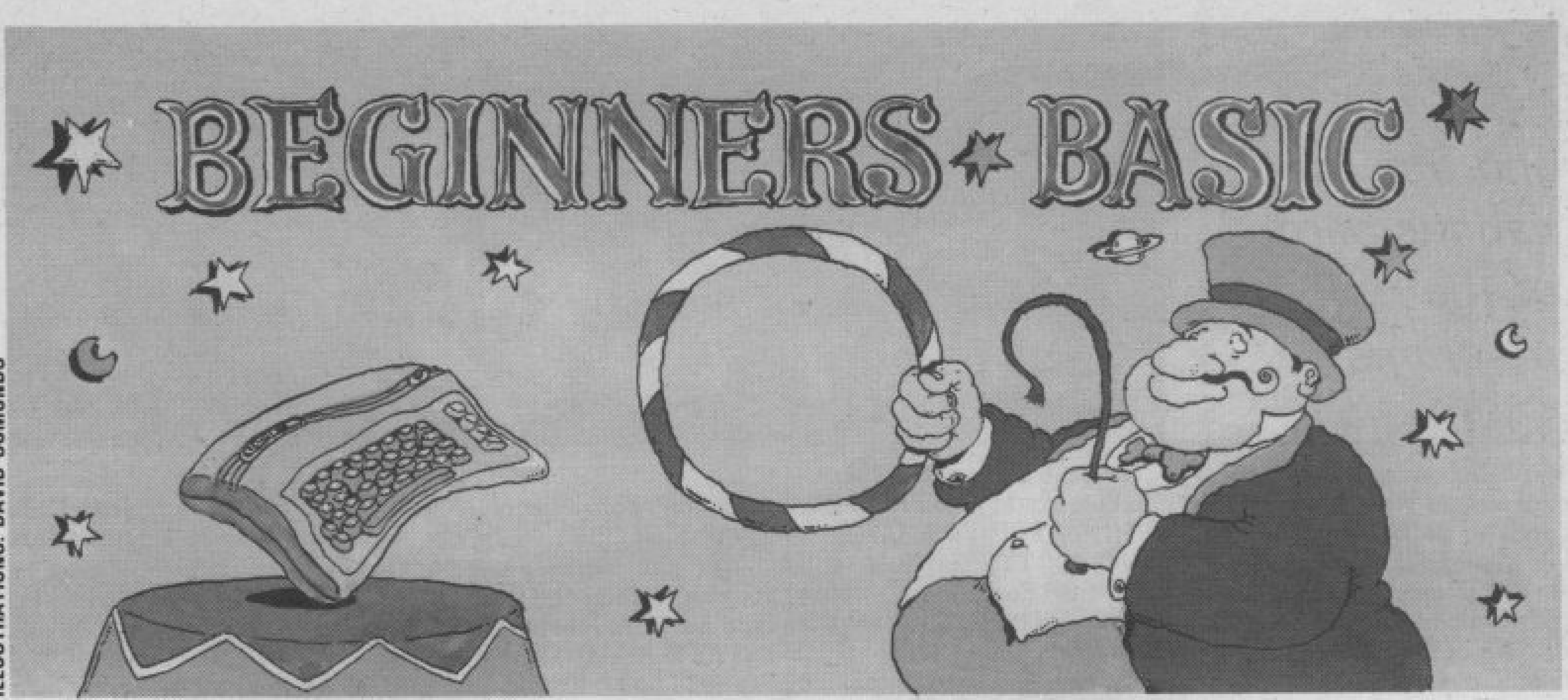
The object of this part of the game is to get John Preston inside the building where the bomb is hidden. This is an inspired piece of adventure programming, when that phone rings it really sounds like the real thing.



Part II sounds like a bit of a cop out. An arcade game — yuk — the objective of which is to dodge the guards in the corridors whilst searching for the bomb.

Back to real adventure again in part III where you have to use codes learned in the previous parts of the game to defuse the bomb.

The Fourth Protocol was programmed by a team of freelance programmers called the Red Pencil Company and is published by Hutchinson. If this game is a success the publishers may follow it up with a game version of Forsyth's best known book — the Day of the Jackal, and a game based on their other top selling author Len Deighton.



ILLUSTRATIONS: DAVID SUMONDS

Part 4 — a useful application

by Brian Grainger

We've reached the final part of our Basic tutorial, so it's time to produce a really useful program, one that will let you keep track of your bank account. And while you're doing that, you'll learn a thing or two about logical operators, saving and loading on tape, and using subroutines.

Last time the homework was a bit tricky. I found out how tricky when I came to work on the answer! The main problem is not the fundamental parts of the program but catering for the possible errors a user might make when running the program. Anyway, here's my solution:

```
100 BA=100 : NT=0
110 REM START
120 PRINT"[CLS]WHAT DO YOU WANT TO DO?"
130 PRINT
140 PRINT"PRESS 1 TO INPUT SOME TRANSACTIONS
150 PRINT"PRESS 2 TO DISPLAY THE BANK STATEMENT
160 PRINT"PRESS 3 TO REMOVE ALL TRANSACTIONS
    AND"
170 PRINT"   RESET THE BALANCE"
172 PRINT"PRESS 0 TO FINISH"
180 PRINT
190 INPUT CH
200 ON CH GOTO 300,400,500
210 END
220 REM ........
300 REM INPUT TRANSACTIONS
305 NT=NT+1
310 PRINT"[CLS]TRANSACTION DESCRIPTION"
320 INPUT TD$(NT)
330 INPUT"[CD]CASH VALUE";CV(NT)
340 PRINT"[CD]TYPE 'D' FOR A DEBIT OR 'C' FOR A
    CREDIT"
350 INPUT TT$(NT)
360 PRINT"[CD]ANY MORE? TYPE 'Y' FOR YES, 'N' FOR
    NO"
370 INPUT AN$
380 IF AN$="Y" THEN GOTO 300
390 IF AN$="N" THEN GOTO 110
395 PRINT "ANSWER NOT VALID" : GOTO 360
397 REM .......
400 REM DISPLAY STATEMENT
405 CB=BA
```

```
410 PRINT "[CLS]INITIAL BALANCE IS";BA
415 IF NT=0 THEN PRINT"[CD]THERE ARE NO TRANS
    ACTIONS" : GOTO 470
420 FOR I=1 TO NT
430 PRINT TD$(I);" OF VALUE";CV(I);"IS A ";
440 IF TT$(I)="D" THEN PRINT"DEBIT" : CB=CB-CV(I) :
    GOTO 460
450 PRINT"CREDIT" : CB=CB+CV(I)
460 NEXT I
470 PRINT"[CD]CURRENT BALANCE IS";CB
480 PRINT"[CD]HIT A KEY TO CONTINUE"
490 GET A$ : IF A$="" THEN 490
495 GOTO 110
497 REM .......
500 REM RESET THE BALANCE
505 IF NT=0 GOTO 570
510 FOR I=1 TO NT
520 IF TT$(I)="D" THEN BA=BA-CV(I) : GOTO 540
530 BA=BA+CV(I)
540 TD$="" : CV(I)=0 : TT$=""
550 NEXT I
560 NT=0
570 GOTO 110
```

A few points from the program. Firstly on line 380, I used IF ... THEN GOTO. When the THEN is immediately followed by a GOTO the Basic language will allow you to drop *either* the THEN, *or* the GOTO.

Did you notice my use of REM statements in the program such as line 300? Any characters after a REM are simply remarks to make the program easier to understand. Here I used them to split up and title the various sections of the program.

One final comment is that the program will only deal with up to ten transactions. If we dimension the arrays at the start then a more realistic number could be given.

Logical Operators

Last time I introduced the relational operators, '=', '<>', '<', '>', '<=', '>=', used in logical expressions for IF statements. In all the examples so far each IF statement has only considered whether a single statement was true. But what happens if we only wanted to do something if two or more statements were true? The answer is to use the **logical operators**. There are three of these, AND, OR and NOT:

'split up and title the various parts of the programs'



• **AND** connects two logical expressions when we wish the result to be *true* only if *both* the expressions are *true*.
• **OR** is used when we wish the result to be *true* if *either* or *both* of the expressions are *true*.
• **NOT** is used with a single logical expression and the result will be *true* if the expression is *false* and vice versa.

Data input and output

In last month's problem you probably realised that the result was not much use because once the computer was turned off we lost all the information on our transactions. We need to be able to *store* the values so that we can switch the computer off and then when we have written some more cheques or received a pay packet we can add these to the transactions. We need a means of saving and loading data.

So we must do three things: tell the cassette unit that we are going to send some data and we want to write it to a tape, send the data, and finally tell the cassette that we have finished.

Saving data

To tell the datasette we are going to send data which needs writing to tape we say: **OPEN 5,1,1, "FILENAME"**. This tells the computer to open a file, which we shall reference in the program by the number 5, on the unit whose number is 1, the datasette. The final '1' says open the file for writing, rather than reading. Finally we attach a filename, which must be no more than 16 characters long, so that we can find the file again on a tape that may have more than one data or program file on it.

We send data on the datasette in a similar manner to sending data to the screen. Instead of PRINT we use PRINT # and follow it with the file reference number.

With the above OPEN statement we could say: PRINT #5, TD$(I) or PRINT #5, CV(I) or PRINT #, TT$(I). This will send the description, value and type of transaction I to the datasette.

To tell the computer we have finished sending data we close the file with **CLOSE 5**. It is *very* important to close the file because if you don't and some information is still in the buffer it will not get written to tape! So here's the routine.

```
600 REM WRITE TRANS
    ACTIONS TO TAPE
610 OPEN 5,1,1,
    "STATEMENT"
620 PRINT #5, BA
625 IF NT=0 THEN NT=I :
    TD$(I) = "DUMMY" :
    CV(I) = 0 : TT$(I) = 'C'
630 FOR I=1 TO NT
640 PRINT #5, TD$(I)
650 PRINT #5, CV(I)
660 PRINT #5, TT$(I)
670 NEXT I
675 CLOSE 5
680 GOTO 110
```

We would also have to add some new lines at the start of the program to access the new routine but as I'm going to add a few more routines yet I'll do that at the end!

Loading data

Now that we've saved the data to tape we need a routine to load it back when we use the program again. This time we need to tell the datasette that we want to read data from tape, then we wish to input the data and finally we want to tell the cassette when we have finished reading data. To do this, we use an OPEN statement again. This time we have: **OPEN 5,1,0, "FILENAME"**. The only difference from the OPEN statement for writing data is to use a '0' instead of the final '1'. This is how we tell the datasette we want to read rather than write it.

To input the data from the tape file we use INPUT# in much the same way as PRINT#, so we get: INPUT#5, TD(I) or INPUT#5, CV(I) or INPUT#5, TT$(I). And don't forget to close the file with **CLOSE5**.

We can now write our routine to read the data from tape back into memory:

```
700 REM READ TRANS
    ACTIONS FROM TAPE
710 I=0
720 OPEN 5,1,0,
    "STATEMENT"
730 INPUT #5, BA
740 I=I+1
750 INPUT #5, TD$(I)
760 INPUT #5, CV(I)
770 INPUT #5, TT$(I)
780 IF ST<>64 THEN 740
790 CLOSE 5
795 NT=I
797 GOTO 110
```

Line 780 needs some explaining. ST is an inbuilt Basic variable like TI. It is set to a value every time a PRINT # or an INPUT # is carried out. When ST has a value of 64 it means that the last item has been read from the tape file, which in our case means there are no more transactions to read. So we have therefore set up a REPEAT . . . UNTIL no more data is on the tape.

Looking at subroutines

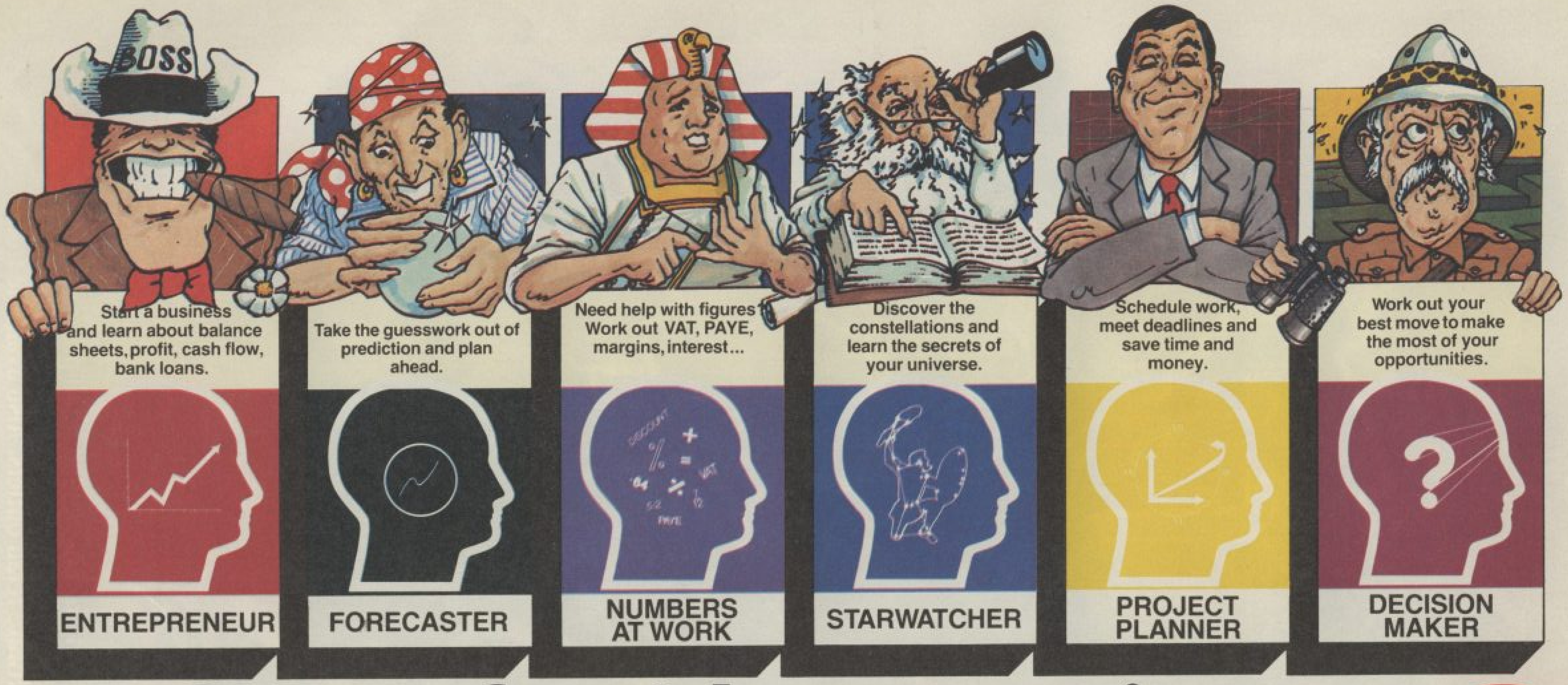
From the above examples we've found it very much easier to write our program when we split the problem up into little sub-programs. In Basic these sub-programs are called *subroutines*.

Splitting a large program up into little programs is one use of a subroutine. Another use is when we have a subprogram that we may wish to use at more than one place in the complete code. It's time consuming and wasteful of computer memory to type the instructions in more than once. What we do is write the repeated instructions as a subroutine and then tell the computer to execute the subroutine in the various places in the program.

To create a subroutine we simply write the instructions and then after the final instruction we add another line of code: **123 RETURN**. This RETURN statement tells the computer to continue execu-



'a dimension code has been added to cope with thirty transactions'



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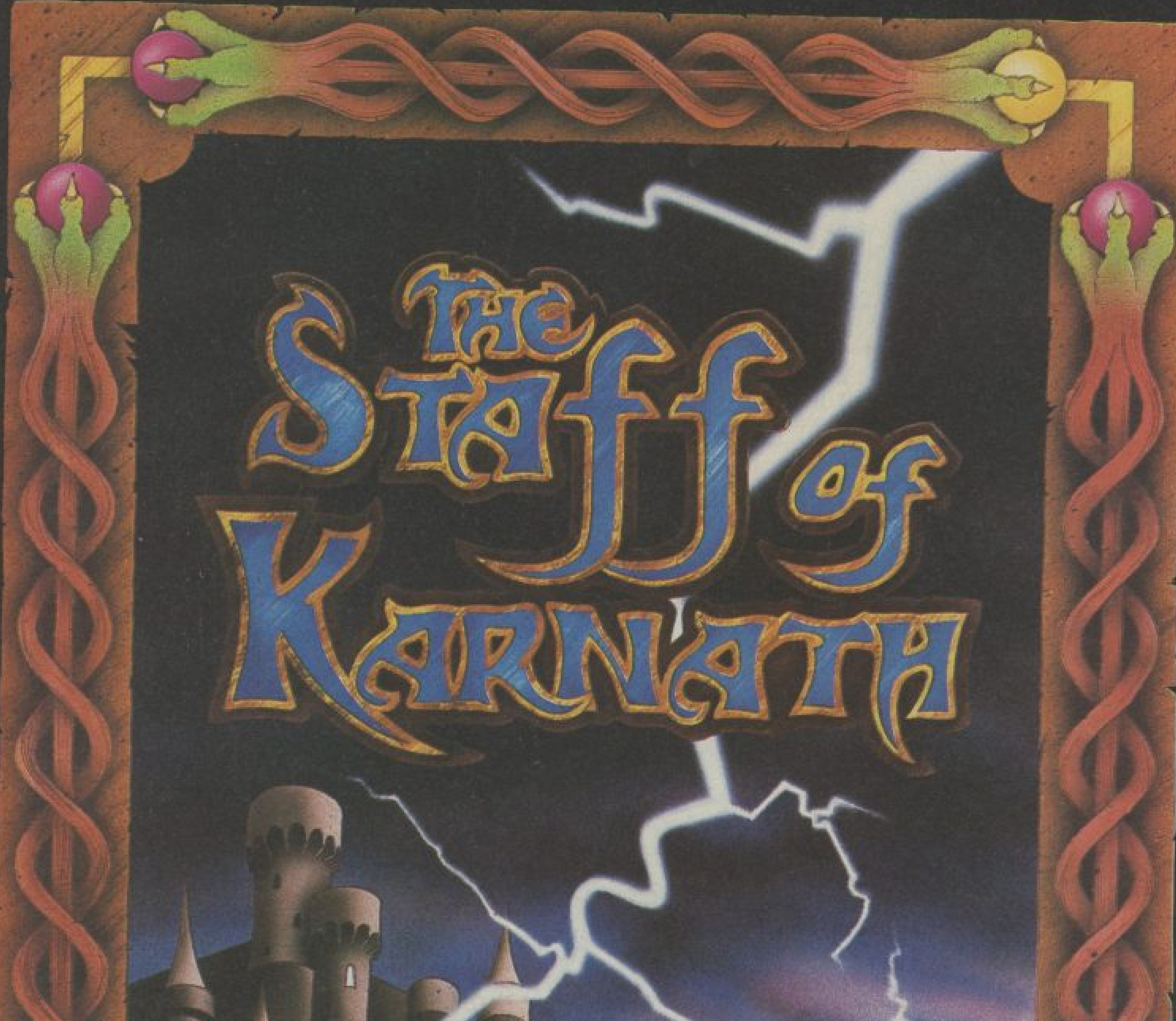
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tion at the line following that which called the subroutine.

It is not possible to use a GOTO statement because the line number target of the GOTO would be different each time if the subroutine was called in different parts of the program. To call a subroutine we say: **345 GOSUB 1234**, where 1234 is replaced by the line number of the first line of the sub-program.

As an example of a subroutine let us suppose we wish to write a program which gives an indication of the effect of rounding errors when numbers are rounded to two decimal places before and after multiplication.

```
100 REM TO ILLUSTRATE
    THE EFFECTS OF
    ROUNDING
110 INPUT"FIRST
    NUMBER";A
120 INPUT"SECOND
    NUMBER";B
130 PRINT"THE VALUE OF
    A*B IS";A*B
140 SA=A : GOSUB 500 :
    A=SA
150 SA=B : GOSUB 500 :
    B=SA
160 SA=A*B : GOSUB500
170 PRINT"WHEN ALL
    NUMBERS ARE
    ROUNDED TO TWO"
180 PRINT"DECIMAL
    PLACES THE RESULT
    IS";SA
190 END
500 SA=SA*100
510 SA=INT(SA+0.5)
520 SA=SA/100
530 RETURN
```

Two points to note here. Firstly the subroutine is used three times but with a different input value in each case. Because we always use the same variables every time the subroutine is used we have to introduce an extra one, **SA**, to be used in the subroutine. **SA** is then set to whichever number we want to round. Similarly when we finish the subroutine the result has to be stored somewhere otherwise it would be lost when the subroutine is used again. The technical term for the variable **SA** is a *parameter* of the subroutine.

The second point is that we *must* use an **END** statement in **line 190**. If we didn't the subroutine lines would be executed again by mistake. Subroutines can be placed anywhere in the program but put them at the end so you can easily stop them being executed incorrectly.

ON . . . GOSUB

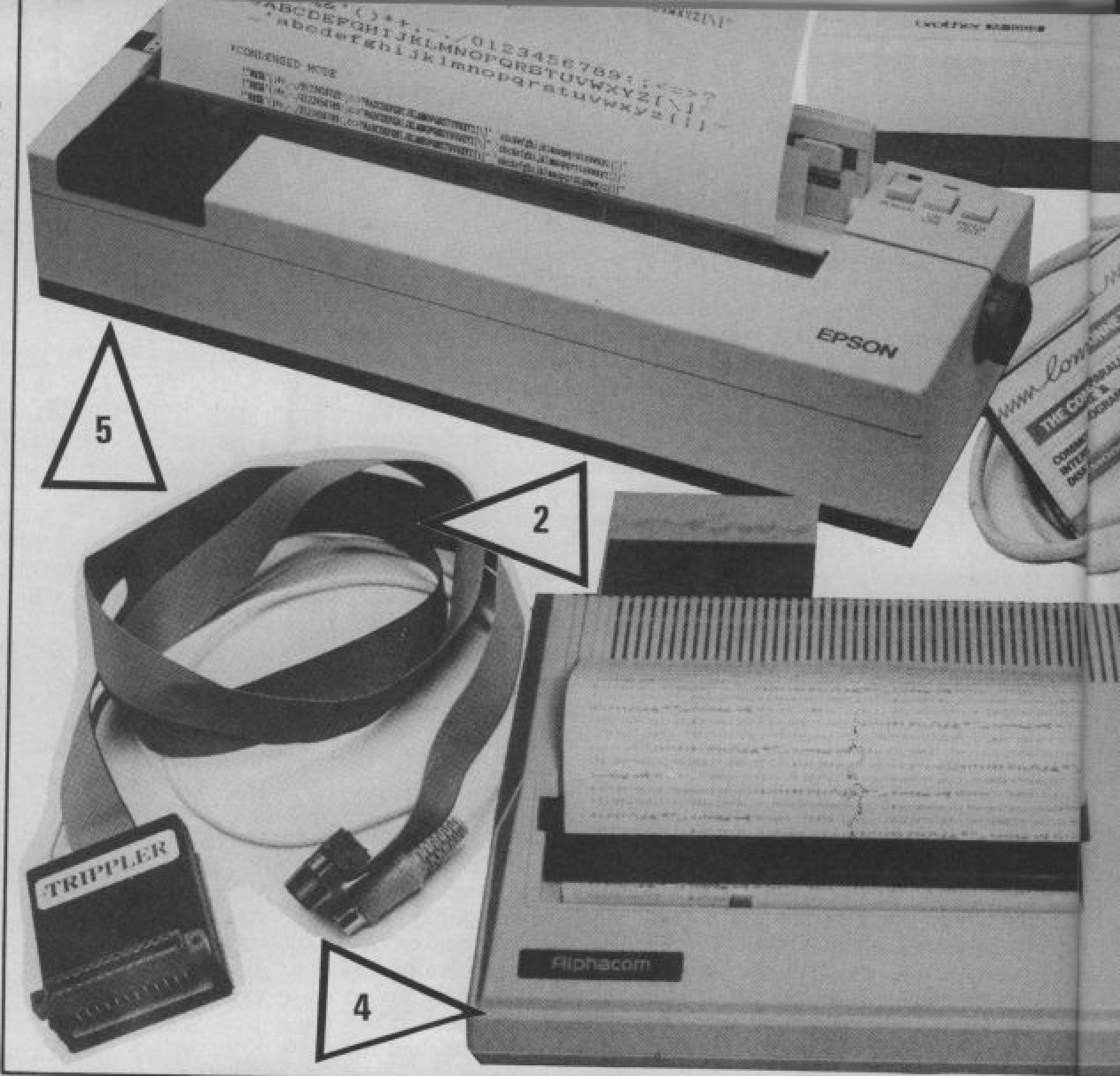
Just as we had an ON . . . GOTO statement we can have an ON . . . GOSUB which operates in the same way except instead of going to a specific line number on the result of a variable value the program will call up a specific subroutine. When the subroutine is finished the program will go to the statement following the ON . . . GOSUB. We can use this idea in the banking program. By a small modification at the start and by using an ON . . . GOSUB instead of an ON . . . GOTO we can use the little sub-programs we have created. We must, however, replace the **GOTO 110** at the end of each sub-program with a **RETURN** statement. Let's put everything together to form the final program.

```
100 REM COMPLETE BANKING PROGRAM
105 DIM TD$(30), CV(30), TT$(30)
110 REM START
120 PRINT"[CLS]WHAT DO YOU WANT TO DO?"
130 PRINT
140 PRINT"PRESS 1 TO INPUT SOME TRANSACTIONS
150 PRINT"PRESS 2 TO DISPLAY THE BANK STATEMENT
160 PRINT"PRESS 3 TO REMOVE ALL TRANSACTIONS
    AND"
170 PRINT"   RESET THE BALANCE"
172 PRINT"PRESS 4 TO WRITE TRANSACTIONS"
174 PRINT"PRESS 5 TO READ TRANSACTIONS"
178 PRINT"PRESS 0 TO FINISH"
180 PRINT
190 INPUT CH
200 ON CH GOSUB 300,400,500,600,700
205 IF CH<>0 THEN 110
210 END
220 REM .......
300 REM INPUT TRANSACTIONS
305 NT=NT+1
310 PRINT"[CLS]TRANSACTION DESCRIPTION"
320 INPUT TD$(NT)
330 INPUT"[CD]CASH VALUE";CV(NT)
340 INPUT"[CD]TYPE 'D' FOR A DEBIT OR 'C' FOR A
    CREDIT"
350 INPUT TT$(NT)
360 PRINT"[CD]ANY MORE? TYPE 'Y' FOR YES, 'N' FOR
    NO"
370 INPUT AN$
380 IF AN$="Y" THEN GOTO 300
390 IF AN$<>"N" THEN PRINT "ANSWER NOT VALID" :
    GOTO 360
395 RETURN
397 REM .......
400 REM DISPLAY STATEMENT
405 CB=BA
410 PRINT "[CLS]INITIAL BALANCE IS";BA
415 IF NT=0 THEN PRINT"[CD]THERE ARE NO
    TRANSACTIONS" : GOTO 470
420 FOR I=1 TO NT
430 PRINT TD$(I);"   OF VALUE";CV(I); "IS A ";
440 IF TT$(I)="D" THEN PRINT"DEBIT" :
    CB=CB-CV(I) : GOTO 460
450 PRINT"CREDIT" : CB=CB+CV(I)
460 NEXT I
470 PRINT"[CD]CURRENT BALANCE IS";CB
480 PRINT"[CD]HIT A KEY TO CONTINUE"
490 GET A$ : IF A$="" THEN 490
495 RETURN
497 REM .......
500 REM RESET THE BALANCE
505 IF NT=0 GOTO 570
510 FOR I=1 TO NT
520 IF TT$(I)="D" THEN BA=BA-CV(I) : GOTO 540
530 BA=BA+CV(I)
540 TD$="" : CV(I)=0 : TT$=""
550 NEXT I
560 NT=0
570 RETURN
580 REM .......
600 REM WRITE TRANSACTIONS TO TAPE
610 OPEN 5,1,1,"STATEMENT"
620 PRINT#5,BA
625 IF NT=0 THEN NT=I : TD$(I)="DUMMY" : CV(I)=0 :
    TT$(I)="C"
630 FOR I=1 TO NT
640 PRINT#5,TD$(I)
650 PRINT#5,CV(I)
660 PRINT#5,TT$(I)
670 NEXT I
675 CLOSE 5
680 RETURN
690 REM .......
700 REM READ TRANSACTIONS FROM TAPE
710 I=0
720 OPEN 5,1,0,"STATEMENT"
730 INPUT#5,BA
740 I=I+1
750 INPUT#5,TD$(I)
760 INPUT#5,CV(I)
770 INPUT#5,TT$(I)
780 IF ST<>64 THEN 740
790 CLOSE 5
795 NT=I
797 RETURN
```

I have made a small change to **lines 390** and **395** to turn the input transaction code into a subroutine and a dimension statement has been added to cope with thirty transactions. To use the complete program you must create a tape file STATEMENT. Do this by typing the following from the keyboard when using the program for the first time: **GOSUB 600**.

You may now rewind the tape and run the program. I suggest you use two tapes. One to read the last set of data and one to write the updated data. If you alternate between these two tapes you will always have a record of the current status and that previous in case anything untoward should happen.

Phew, that's brought us to the end of our Basic course. We've covered the fundamental ideas of programming and we've produced a useful banking program that you can use in the home, which incorporates most of the ideas we discussed during the course. You now have the tools to get your computer to do what YOU want. □



THE CENTRONIC

How to choose a ri

Buying a printer for your Commodore computer? Commodore printers not to your liking because they're slow, noisy or just too dear? You've got a problem. Almost every non-Commodore printer at under £250 has a Centronics interface. So you'll need an interface adaptor to

Firstly, you need to decide just what you require from a printer. We've already decided to restrict our price to under £250. So, if speed is your number one priority, then you will probably go for a dot matrix printer which is capable of speeds of up to 120 characters per second. If you require typewriter quality, then a daisy wheel may be the right choice. But there aren't too many of those for under £250. Remember, however, that there are several dot matrix printers which combine near letter quality printing with top speeds.

Secondly, you will almost certainly require an interface to allow your Commodore computer to 'talk' to your printer. Your choice of interface will be governed, again, by your requirements. Again, we're restricting our range to £50. Probably the most common printer interface for connecting printers to micros is the Centronics parallel interface and so we are looking only at these in this article.

Types of interface

Many interfaces contain a chip on the circuit board to convert the non-standard Commodore ASCII characters into standard ASCII and are thus called 'intelligent' interfaces. Other interfaces use a piece of software called a 'driver', which must be loaded to use the interface with your own programs. These are usually called 'dumb' interfaces. Many commercially available programs, especially wordprocessors, already contain the necessary software to drive a printer and so, with these programs, only the cable is really needed.

One word of warning before we start looking at the products available. It's not possible for us to test every combination of printer and interface adaptor mentioned. We can only give a guide. You must satisfy yourself that the devices you've chosen will do the job you require *before* opening your wallet. The best and obvious way to do that is to insist that your dealer gives a demonstration. So let's start by looking at the three types of interface adaptor you can buy for under £50.

Intelligent interfaces

At £39.95, the Centronics parallel interface from **Zero Electronics (pic 1)** is one of the more impressive looking interfaces on the market. It works with the Vic, 64, 16 and Plus/4 machines. The neat brown box plugs into the Centronics port of the printer. There are two leads, one which goes into the serial port of the Commodore computer or disk drive and the other into the cassette port for the power supply. A small adaptor on the back of the cassette plug allows the cassette recorder to be used as normal.

Unfortunately, the box doesn't use the clips on my Epson RX80 Centronics connector so giving the impression of being none too securely attached. The manual does contain several misprints which are rather confusing and could fox the novice, but on the whole I found it easy to follow and reasonably comprehensive.

The Zero interface has two character sets which correspond to those on the Commodore 64 and Vic 20 and you make the choice by means of the 'secondary address'. For example, the secondary address 7 gives you upper and lower case characters for wordprocessing. High resolution bit-mapped graphics can be sent to the printer so that you can dump the screen exactly to the printer. You can also print out the special Commodore graphics characters in a fairly recognisable form between '@' signs. There are, however, no facilities available for a carriage return with line feed.

I tried the Zero Electronics interface with Easy Script and found it worked perfectly. With the Ultrabasic high resolution screen dump I found it rather erratic as it worked with some pictures and not with others. All in all, I would say that this is a good product at a reasonable price and should definitely be considered, especially as Zero also offers an optional 16K printer buffer for a mere £13.95.

Parallel Printer Interface: £39.95, from Zero Electronics, 149 Kingstreet, Great Yarmouth. Tel: 0493 842023.
Optional 16K Printer buffer: £12.95.



S CONNECTION
printer and interface

make it work with your Commodore computer, and you probably won't want to spend more than £50 for it. But which one to buy? And which printer offers the facilities you want? We've rounded up the complete sub-£250 range.

by Valerie Buckle

The second intelligent interface I looked at was the **Trippler (pic 2)** from *RAM Electronics* (they call it the **Vicsprint 2064**). It's a little more expensive at £49.95. It consists of a length of ribbon cable with a Centronics plug on one end which goes to the printer using the clips provided, and a cartridge-type box on the other end which plugs into the user port of your Vic or 64. A cable with a Din plug from the box goes into the serial port on the computer or disk drive. Taking its power supply thus from the user port, you cannot use the user port for any other peripherals.

The Trippler allows you to perform a carriage return with or without line feed depending on the file number used. Secondary address modes are used to access all the other options available with the Trippler. Upper case only or both upper and lower case characters are possible, and the Trippler also interprets the Commodore graphics characters in an acceptable manner. High resolution bit-mapped graphics can be dumped to the printer using the software available (although the instructions say that this is not possible).

I encountered no problems when using the Trippler with both Easy Script and UltraBasic, but I found that it doesn't appear to print out the entire control character set. Another point to mention is that my screen was fuzzy whenever I had the Trippler in place. But I have no real complaints. I would recommend this interface strongly.

> Vicsprint 2064 (Trippler): £49.95 from Ram Electronics (Fleet) Ltd, 106 Fleet Road, Fleet, Hants GU13 8PA. Tel: 02514 25252.

Interfaces with software drivers

The Commodore Connexion (pic 3) is one of a breed of 'dumb' interfaces whose drivers come as accompanying software. For your £19.95 you get a cable, one end of which you plug into the user port of your Commodore 64 (there is no Vic version) and the other end into the Centronics port of your printer. Also included in the price is the tape-based driver software. The program is located behind the Kernal ROM so no user memory is lost.

The instructions contained no reference as to how to connect the cable, but were otherwise quite comprehensive. The interface has, essentially, two modes of control which are selected by choosing device number 4 or 5. One mode gives you carriage return with line feed and the other prints the characters direct. Upper and lower case characters can be printed out by selecting a secondary address of '7' and I had no problems using Easy Script with this interface. Commodore graphics characters are replaced with mnemonics, but there appear to be no facilities available for dumping high resolution bit-mapped graphics to the printer.

Cheap and cheerful, this one performed what it could reasonably well, but it restricts the uses of the Commodore to an unacceptable degree.

> The Commodore Connexion: £19.95 from SMC Supplies, 11 Western Parade, Gt. North Road, Barnet, Herts EN5 1AD. Tel: 01-441 1282.

Mushroom Software advertise a Centronics interface for the Commodore 64 which is an update of the popular **Epson Magic**. This connects the printer to the user port and is available with or without the software driver on tape or disk.

In addition to the standard carriage control facilities, this interface will also represent the Commodore graphic and control characters, allow upper case only or upper and lower case characters to be sent to the printer, all through use of secondary addressing.

What sets this apart from many other 'dumb' interfaces is its ability to dump high resolution bit-mapped graphics screens to your printer. Although I have not tried this interface, the manufacturers assure me that most commercial software for the Commodore 64 will work with most Centronics printers.

THE CENTRONICS CONNECTION

Centronics interface: £10 for the cable plus £9.50 for the software driver on tape (disk version £2 extra) from Mushroom Software, 193 Rommany Road, London SE27 9PR. Tel: 01-670 3533.

Chromasonic Computer Centre offer another Centronics interface with tape based software. At £19.95 for the cable which plugs into the user port and the Centronics port on the printer and an extra £7.95 for the software this is considerably more expensive than the other 'dumb' interfaces described here.

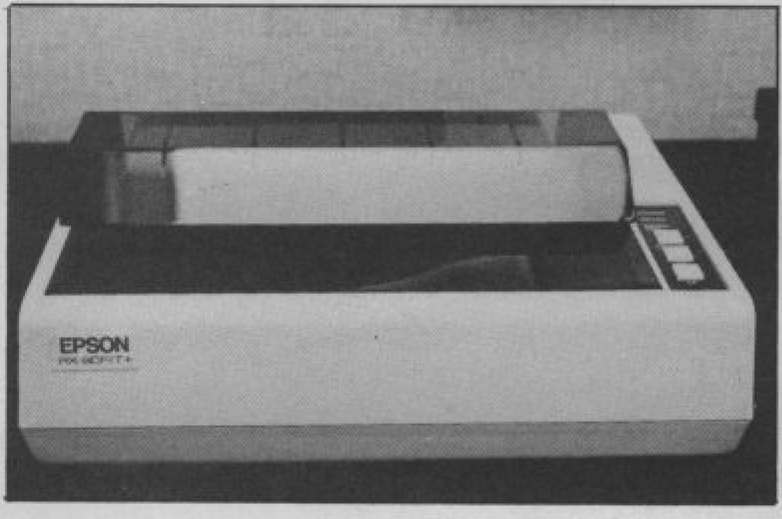
Standard carriage control facilities, upper case printing for Basic programs, upper and lower case for wordprocessing, conversion of Commodore graphics and some control characters are all available via secondary addressing.

This interface does not allow high resolution bit-mapped graphics dumps and there is no software available from Chromasonic to allow you to do this. So it doesn't seem to match the claims of the Mushroom Software interface.

Centronics interface: £19.95 for the cable and £7.95 for software driver from Chromasonic, 48 Junction Road, Archway, London N19 5RD. Tel: 01-263 9493.

Printlink must be one of the most popular Centronics interfaces for Commodore machines. It sells for £29.90 and is available for both the Vic and 64. It is very similar to the RAM Electronics interface in looks and consists of a cable of which one end (once again) plugs into the user port and the other into the Centronics port of the printer. The software driver is available either on tape or disk.

Printlink differs from the other interfaces mentioned here in that instead of using secondary addressing, it uses a direct POKE to the machine-code program to control the modes of opera-



The classy Epson RX80 won't leave you much change from £250.

Printers less than £100

PRODUCT: Alphacom-42, £49.95
SUPPLIER: Dean Electronics, Glendale Park, Fernbank Road, Ascot, Berks. Tel: 0344 885661
INTERFACES: Plug-in cartridge (will reproduce Commodore graphics set)
PRINT MATRIX: n/a
PRINTING SPEED: 80 cps
PAPER FEED: Friction feed
PAPER WIDTH: 4.25 ins
COLUMNS: 40
PRINT DIRECTION: n/a
PRINT QUALITY: Thermal

PRODUCT: Alphacom-81, £79.95 **(pic 4)**
SUPPLIER: as above
INTERFACES: as above
PRINT MATRIX: n/a
PRINTING SPEED: 100 cps
PAPER FEED: Friction feed
PAPER WIDTH: A4
COLUMNS: 80
PRINT DIRECTION: n/a
PRINT QUALITY: Thermal

Printers from £100-£150

PRODUCT: MPS 801, £149
SUPPLIER: Commodore Business Machines (via dealers)
TYPE: Dot matrix
INTERFACES: Commodore Serial (2 ports)
PRINT MATRIX: 6×7
PRINTING SPEED: 50 cps
PAPER FEED: Tractor feed
PAPER WIDTH: 4.5 to 10 inch
COLUMNS: 80
PRINT DIRECTION: Unidirectional

PRODUCT: Brother HR5, £144
SUPPLIER: Brother Office Equipment, Manchester (via dealers)
TYPE: Thermal dot matrix
INTERFACES: Centronics or RS232
PRINT MATRIX: 9×9
PRINTING SPEED: 30 cps
PAPER FEED: Friction feed
PAPER WIDTH: 8 inches
COLUMNS: 80
PRINT DIRECTION: Bidirectional

Printers from £150-£200

PRODUCT: Epson P-80, £160 **(pic 5)**
SUPPLIER: Epson (via dealers)
TYPE: Thermal transfer
INTERFACES: Serial — Centronics to follow
PRINT MATRIX: 9×9
PRINTING SPEED: 45 cps
PAPER FEED: Friction
PAPER WIDTH: 8.5 ins
COLUMNS: 80
PRINT DIRECTION: Unidirectional

PRODUCT: Fastext 80, £170 **(pic 6)**
SUPPLIER: Smith-Corona (via dealers)
TYPE: Dot matrix
INTERFACES: Centronics and/or RS232
PRINT MATRIX: 9×9
PRINTING SPEED: 80/160 cps
PAPER FEED: Tractor or friction feed
PAPER WIDTH: 10 ins
COLUMNS: 80
PRINT DIRECTION: Bidirectional

PRODUCT: Ibico LTR 1, £175 **(pic 7)**
SUPPLIER: Ibico Ltd, 181 Spring Grove Road, Isleworth, Middlesex
TYPE: Daisy wheel (chs. on cylinder)
INTERFACES: Centronics
PRINT MATRIX: n/a
PRINTING SPEED: 12 cps
PAPER FEED: Friction feed, single sheet
PAPER WIDTH: 8.5 ins
COLUMNS: 80
PRINT DIRECTION: Bidirectional
PRINT QUALITY: Letter quality

PRODUCT: Brother M1009, £179 **(pic 8)**
SUPPLIER: Brother Office Equipment, Manchester (via dealers)
TYPE: Dot matrix
INTERFACES: Centronics and/or RS232
PRINT MATRIX: 9×9
PRINTING SPEED: 50 cps
PAPER FEED: Tractor or friction feed
PAPER WIDTH: 8 ins
COLUMNS: 80
PRINT DIRECTION: Bidirectional
PRINT QUALITY: Near letter quality

PRODUCT: Star Gemini 10X, £190
SUPPLIER: Star (via dealers)
TYPE: Dot matrix
INTERFACES: Centronics
PRINT MATRIX: 9×9
PRINTING SPEED: 120 cps
PAPER FEED: Tractor or friction feed
PAPER WIDTH: 11 ins
COLUMNS: 80
PRINT DIRECTION: Bidirectional
PRINT QUALITY: Near letter quality

PRODUCT: OKI Microline 80, £199
SUPPLIER: X-Data, 750-51 Deal Avenue, Slough Trading Estate, Slough, Berks. Tel: 0753 72331
TYPE: Dot matrix
INTERFACES: Centronics
PRINT MATRIX: 9×7
PRINTING SPEED: 80 cps
PAPER FEED: Tractor or friction
PAPER WIDTH: A4 ins
COLUMNS: 80
PRINT DIRECTION: Unidirectional
PRINT QUALITY: Good

Printers from £200-£250

PRODUCT: MT80, £220
SUPPLIER: Mannesman Tally, Molly Millars Lane, Wokingham, Berks RG11 2QT. Tel: 0734 791868 (via dealers)
TYPE: Dot matrix
INTERFACES: Centronics
PRINT MATRIX: 9×7
PRINTING SPEED: 100 cps

tion. You can print exactly as the screen display, force a Commodore ASCII to ASCII conversion (enabling Commodore graphic characters to be represented as upper case characters and Basic in lower case characters), or dump the screen directly to the printer for printing out high resolution bit-mapped graphics displays.

Printlink 64: £29.90 from Supersoft, Winchester House, Canning Road, Wealdstone, Harrow, Middx HA3 7SJ.

Stack 100 offer a Centronics interface for the Vic 20 or Commodore 64 for a mere £24.00. I like the style of this interface, in particular the strengthened cable and solid plugs. The driver software comes on tape, or disk for an extra £5. I have not tried this interface myself but friends report that it works well with Easy Script.

The adverts state, however, that it does not work with all commercially available software and I have a friend who had to buy another interface to use with a specific piece of software which wouldn't work with the Stack. So, check carefully before buying this interface. Unfortunately, Stack has gone bankrupt but its products are still available. See below.

Stack Centronics interface: £24.00 (disk version £5.00 extra) from Medemore Ltd, 12 Gaulden Road, Wythenshaw, Manchester.

Next month, we'll be looking at three top of the range interface adaptors, none of which will leave you much change from £100.

PAPER FEED: Tractor or friction feed
PAPER WIDTH: 4-10 ins
COLUMNS: 80
PRINT DIRECTION: Bi-directional
PRINT QUALITY: Near letter quality

PRODUCT: Walters WM 80, £199
SUPPLIER: Walters Microsystems International, Cetec House, Lincoln Road, Cressex Industrial Estate, High Wycombe, Bucks HP12 3QU
TYPE: Dot matrix
INTERFACES: Centronics
PRINT MATRIX: 7×8
PRINTING SPEED: 80 cps
PAPER FEED: Tractor and friction feed
PAPER WIDTH: 4-10 ins
COLUMNS: 80
PRINT DIRECTION: Bi-directional
PRINT QUALITY: Good

PRODUCT: Daisy Step 2000, £250
SUPPLIER: Via dealers
TYPE: Daisy Wheel
INTERFACES: Centronics
PRINT MATRIX: n/a
PRINTING SPEED: 18 cps
PAPER FEED: Friction feed
PAPER WIDTH: Up to A4
COLUMNS: 80
PRINT DIRECTION: Bi-directional
PRINT QUALITY: Letter quality

PRODUCT: Smith Corona TP1, £200
SUPPLIER: Smith-Corona (via dealers)
TYPE: Daisy Wheel
INTERFACES: Centronics or RS232
PRINT MATRIX: n/a
PRINTING SPEED: 12 cps
PAPER FEED: Friction feed
PAPER WIDTH: 12 ins
COLUMNS: 100
PRINT DIRECTION: Uni-directional
PRINT QUALITY: Letter quality

PRODUCT: Shinwa CPA 80, £220
SUPPLIER: Via dealers
TYPE: Dot matrix
INTERFACES: Centronics or RS232
PRINT MATRIX: 13×9
PRINTING SPEED: 100 cps
PAPER FEED: Friction and tractor feed
PAPER WIDTH: 9.5 ins
COLUMNS: 80
PRINT DIRECTION: Bi-directional
PRINT QUALITY: Dot matrix type

PRODUCT: Epson RX80, £220
SUPPLIER: Epson UK (via dealers)
TYPE: Dot matrix
INTERFACES: Centronics plus RS232 optional
PRINT MATRIX: 9×9
PRINTING SPEED: 100 cps (50 cps ultra quiet mode)
PAPER FEED: Tractor plus optional friction feed
PAPER WIDTH: 4-10 ins
COLUMNS: 80 (RX100 has 100 columns)
PRINT DIRECTION: Bi-directional
PRINT QUALITY: Near letter quality

SOUND AND VISION

Using the graphics and sounds commands on your C-16 or Plus/4

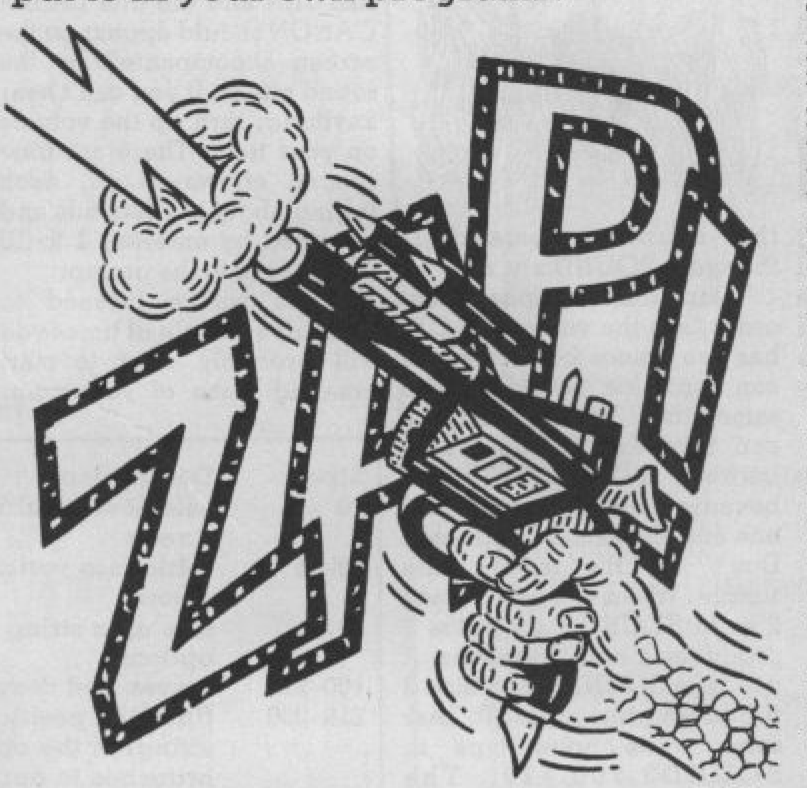
Commodore 16 owners may feel a little let down in the prestige stakes because their favourite machine has a meagre 16K of memory. But there's one thing you can be proud of, the new version of Basic, which gives sound and graphics commands previously unavailable on Commodore machines. Ken McMahon has used them to provide you with two programs, 'Sketchpad' and 'Effects', which illustrate the uses they can be put to in your own programs.



The version of Basic (Basic V3.5) implemented on the C16 and Plus/4 gives you access to many powerful sound and graphics commands, which let you create some quite spectacular effects quickly and easily without having to resort to machine code or endless POKE statements.

There are two programs accompanying this article. The first, **Sketchpad**, makes use of the C16/Plus4's high resolution screen and can be used to draw designs on the screen made up of lines, circles, polygons, etc. The second program, **Effects**, is really a subroutine library. It contains a number of sound effects from an everyday domestic telephone to the sound Martian spaceships will undoubtedly make when they land on Earth — you heard it first on the C16!

It may help you to understand how the programs work if you read the relevant sections in the user manual, specifically, those that refer to high resolution graphics and sound.



GRAPHICS

Type in the **Sketchpad** program and save it in the usual manner. Then run the program (to do this the quick way just press SHIFT F3). The screen should clear and you will see a black flashing cursor, slightly smaller than the usual one in the top left hand corner. This can be moved around the screen using the cursor control keys. If it travels a little slowly for your liking don't worry, I'll show you how to speed it up later. Now is probably a good time to explain the other important keys and their functions:

- **O**-plots the origin of a line or shape
- **D**-plots the destination of a line or shape
- **L**-draws a Line from Origin O to Destination D
- **B**-draws a Box with its opposite corners at O and D
- **C**-draws a circle within an imaginary box with its opposite corners at O and D
- **P**-Paints an area from the cursor to any boundary which is not background colour
- **A**-enables you to Alter certain parameters, namely cursor speed and colours
- **SHIFT/CLR**-clears the screen

The program runs in multicolour mode which basically means you have three colour sources to choose from when drawing and painting shapes. The default colours are:

- **Colour O** (background colour) = cyan
- **Colour 1** = black
- **Colour 2** = yellow
- **Colour 3** = blue
- **Colour 4** = (border colour) = purple

Colours 1 and 2 can be changed without affecting anything you have already drawn, theoretically allowing you to use all the colours available on one screen. However, altering colour 3 will result in changing anything previously drawn in that colour to the new colour.

Using Sketchpad

To give you an idea of how the program works, try the following. Move the cursor to a point somewhere in the top left quadrant of the screen and then press 'O'. Now move the cursor to a point below and to the right of its original position and press 'D'. To draw a box press 'B' and you will be prompted with COLOUR SOURCE (1-3): Enter 1 and press RETURN and you will next be asked for the ROTATION in degrees. As we do not want to rotate the box simply pressing Return results in a black box being drawn on the screen with its opposite corners at 'O' and 'D' respectively.

To draw a circle in the same place press 'C'. Once again you will be asked the same sort of questions including some new ones. START ANGLE and END ANGLE permit you to specify where the circle will begin and end thus making it possible to draw arcs. DEGREES BETWEEN SEGMENTS makes it ▶



ILLUSTRATION: STEPHEN WRIGHT

SOUND AND VISION

possible to draw polygons. To calculate the figure simply divide 360 by the number of sides required. For example to draw a triangle enter 120.

By now, you should be getting the hang of it. For some interesting effects try drawing the same boxes and ellipses in different colours each with different degrees of rotation and painting the gaps in between.

For those of you who want to know how the program works, look at the panel for a line-by-line description.

Before I go on, here's one word of warning (cue sirens). In a program of this kind it is usual to incorporate a few error trapping devices in case someone does something unexpected and the thing hangs up on you after several hours mind-bending composition don't panic. Break out of the program by pressing the RUN/STOP key then type in some garbage and press RETURN. This will cause a syntax error and the computer will return to text mode. Now type **GOTO 100** and you should pick up where you left off.

SOUND EFFECTS

Once you've tired of playing around with graphics you'll probably be ready for some aural stimulation. The second program, **Effects**, is really a number of programs, or sub-



routines in one. I've chosen to concentrate on special sound effects rather than music for a couple of reasons.

Firstly, there are a number of programs in computer books and magazines which will enable you to turn your C16 into a poor cousin of the piano. There are even a couple in the Commodore Manual. Personally I think a piano is much better cut out for the job. Sound effects are much more fun and the C16 produces them as well as anything else I know of. Try getting your old upright to sound like an alien spacecraft. The second reason you may by now have gathered is that I know nothing about music.

Notes and noises

To get a noise or note out of your machine you need to know about the VOL and SOUND commands. VOL not surprisingly stands for VOLume. Maximum volume is achieved by setting VOL8 and minimum volume (silence) by setting VOL0.

Sound is a bit more complicated in that it has three parameters, lets call them **x**, **y** and **z**. The format of



the sound command is therefore SOUND **x**,**y**,**z**.

Taking them in alphabetical order, **x** is the *voice*. The C16 has two voices both of which can produce sound at the same time. Paradoxically, **x** can take any integer value between 1 and 3. This is because voices 2 and 3 are one and the same. Confused? Don't be. It's really quite simple. When you call it voice 2 as in SOUND 2,y,z voice 2 produces a note. However, if you type SOUND3,y,z voice 2 produces white noise. To hear some white noise type in **SOUND3,700,120**. The important thing to remember is that you can't use voice 2 and 3 together. So much for voice.

The *pitch* of your note or noise is determined by **y**, and it can have any integer value from 0 to 1015. Put simply the higher the value of **y**, the higher the pitch or frequency of your sound. Although it isn't too important for effects if you want to produce actual notes you can do this by referring to the table in the user manual.

Finally, **z** determines the *length* of the sound in sixtieths of a second and can have any integer value from 0 to 65535. Hence **SOUND x,y,60** will produce sound for one second and **SOUND x,y,65535** will give about fourteen minutes of it.



The Effects program

Now you know the lot, you're ready to start making your own sound effects. First type in the **Effects** program and save it. On running it you will be prompted with a question mark. Enter 1 and press RETURN and the title LASER CANON should appear on the screen accompanied by the sound effect. If you can't hear anything, turn up the volume on your telly. There are nine special effects in all, each lasting about ten seconds and accessed by entering 1 to 10 in response to the prompt.

When you've listened to them all a couple of times you will probably want to start creating some of your own. The best advice I can give is to take a look at the listing and try to understand how the changing variables alter the final sound. Most of the subroutines employ FOR NEXT loops both to alter pitch (the **y** variable) and the duration (z), and also as a means of implementing delays.

Try substituting your own values in the routines to see how it affects the final result. To add new routines to the library start at **line 1100** and put each subsequent routine at intervals of 100. Don't forget to end each one with a RETURN.

As it stands, the program will hold twenty subroutines in all, but you don't have to be a genius to alter it so that it can accommodate more. Above all, experiment. Remember, the most unlikely combinations make the most unusual effects. Go on, impress your friends. □



Line	Description
10	sets hi-res multicolour mode and clears the screen
20-25	initialises variables and sets default colours
30	sets up a string to contain keyboard options
100-210	moves and draws cursor
210-230	finds the position of the key pressed (A$ string) in the options string (IN$) and branches to appropriate subroutine
1000	sets origin
2000	sets destination
3000-3030	draws a line
4000-4040	draws a box
5000-5110	draws a circle. First the width (XRAD), height (YRAD), and centre coordinates (CX,CY) are calculated. Then the user is asked to input the other parameters in lines 5050-5090.
5100	actually draws the circle
6000-6030	paints an area around the current cursor position to any boundary which is not background colour
7000-7320	first prints the variables containing cursor speed (CS), all four colours (C0-C4), and luminescence levels (L0-L4), then changes them according to user input
8000	clears the screen

SOUND EFFECTS

```
10 PRINT"■"
20 VOL8:INPUT N
30 IF N>10 THEN50
40 ON N GOSUB100,200,300,400,500,600,700
,800,900,1000:GOTO20
50 ON(N-10)GOSUB1100,1200,1300,1400,1500
,1600,1700,1800,1900,2000:GOTO20
100 REM ****** LASER CANON ********
105 PRINT"■■■■■■LASER CANON■"
120 FOR N=1 TO 5
130 FOR S=1000 TO 940 STEP-5
140 SOUND3,S,5
150 NEXT S,N :RETURN
200 REM ****** RED ALERT ********
205 PRINT"■■■■■■RED ALERT■"
210 FOR N=1 TO 5
220 SOUND3,1000,30
230 SOUND1,917,15
235 SOUND1,952,15
250 NEXT N
260 RETURN
300 REM ****** RIGHT ANSWER! ******
305 PRINT"■■■■■■RIGHT ANSWER!■"
310 FORN=1 TO 5
320 SOUND1,700,6
330 SOUND1,350,6
340 NEXT N
350 RETURN
400 REM ****** WRONG ANSWER *********
405 PRINT"■■■■■■WRONG ANSWER!■"
410 SOUND1,100,30
420 FORN=1 TO 100:NEXT N
430 SOUND1,1,90
440 RETURN
500 REM ****** TELEPHONE *********
505 PRINT"■■■■■■TELEPHONE■"
510 FOR A=1 TO 5:FOR B=1 TO 2:FOR C=1TO1
0
520 SOUND1,800,1:SOUND1,900,1
530 NEXTC
540 FOR D=1 TO 100:NEXT D,B
550 FOR D=1 TO 600:NEXT D,A
560 RETURN
600 REM ****** MARTIAN LANDING ****
601 PRINT"■■■■■■MARTIAN LANDING■"
605 FOR N=1 TO 20
610 FOR V=1 TO 10
620 SOUND1,(100+(V*50)),1
630 NEXT V,N
640 RETURN
700 REM ****** ALARM *********
701 PRINT"■■■■■■ALARM■"
705 FOR N=1 TO 5
710 FOR V=100 TO 800 STEP 100
730 VOL (V/100)
740 SOUND1,V,1
750 NEXT V
760 SOUND1,V,30
770 FOR V=300 TO 100 STEP -100
780 VOL (V/100)
790 SOUND1,V,1:NEXT V
795 FOR D=1 TO 100:NEXT D,N
796 RETURN
800 REM ******** RACING CAR*********
805 PRINT"■■■■■■RACING CAR■"
820 FOR N=1 TO 300
830 SOUND1,N,0
840 NEXT
850 FORN=1TO1000
860 SOUND1,300,0
870 NEXT
880 RETURN
900 REM ****** WARBLE *************
905 PRINT"■■■■■■WARBLE■"
910 FOR N=1 TO 200
920 A=700+INT(RND(0)*300)
930 SOUND1,A,1:SOUND1,(A-100),1
940 NEXT N
950 RETURN
1000 REM
1010 RETURN
1020 FORD=1 TO 10:NEXT D,N
1030 GOTO1000
```

SKETCHPAD

```
10 GRAPHIC4,1
20 X=10:Y=10:CS=3:X1=X:X2=X:Y1=Y:Y2=Y
25 COLOR0,4:COLOR1,1:COLOR2,8:COLOR3,6:C
OLOR4,7
30 IN$="ODLBCPA■"
100 DO
105 LOCATE X,Y
110 K=RDOT(2)
120 IF K=0 THEN DRAW1,X,(Y-1)TOX,Y:ELSE
DRAW0,X,(Y-1) TO X,Y
130 FOR N=1 TO 50:NEXT
140 DRAWK,X,(Y-1) TO X,Y
150 GET A$:LOOP WHILEA$=""
160 X=X-CS*(A$="■")+CS*(A$="■")
170 Y=Y-CS*(A$="■")+CS*(A$="□")
180 X=X+160*(X>159)
190 X=X-160*(X<0)
200 Y=Y-160*(Y<0)
210 Y=Y+160*(Y>159)
220 Z=INSTR(IN$,A$)
230 ON Z GOSUB 1000,2000,3000,4000,5000,
6000,7000,8000
235 PRINT"■"
240 GOTO100
1000 FORN=1TO12
1010 PRINT360/N
1020 NEXT
2000 X2=X:Y2=Y:RETURN
3000 PRINT"■■■■■■■■■■■■■■■■■■■■■"
3010 INPUT"COLOR SOURCE(0-3):";CL%
3020 DRAW CL%,X1,Y1 TO X2,Y2
3030 RETURN
4000 PRINT"■■■■■■■■■■■■■■■■■■■■■"
4005 ROT%=0
4010 INPUT"COLOR SOURCE(0-3):";CL%
4020 INPUT"ROTATION 0-360):";ROT%
4030 BOXCL%,X1,Y1,X2,Y2,ROT%
4040 RETURN
5000 PRINT"■■■■■■■■■■■■■■■■■■■■■"
5010 XRAD=(X2-X1)/2
5020 YRAD=(Y2-Y1)/2
5030 CX=X1+XRAD
5040 CY=Y1+YRAD
5050 INPUT"COLOR SOURCE";CL%
5060 SA=0:INPUT"START ANGLE(0-360):";SA
5070 EA=360:INPUT"END ANGLE(0-360):";EA
5080 ROT%=0:INPUT"ROTATION(0-360):";ROT%
5090 DBS=2:INPUT"DEGREES BETWEEN SEGMENT
S";DBS
5100 CIRCLECL%,CX,CY,ABS(XRAD),ABS(YRAD)
,SA,EA,ROT%,DBS
5110 RETURN
6000 PRINT"■■■■■■■■■■■■■■■■■■■■■"
6010 INPUT"COLOR SOURCE(0-3):";CL%
6020 PAINTCL%,X,Y,1
6030 RETURN
7000 PRINT"■■■■■■■■■■■■■■■■■■■■■"
7010 C0=RCLR(0):C1=RCLR(1):C2=RCLR(2):C3
=RCLR(3):C4=RCLR(4)
7020 L0=RLUM(0):L1=RLUM(1):L2=RLUM(2):L3
=RLUM(3):L4=RLUM(4)
7100 PRINT"CURSOR SPEED ";CS
7110 INPUT CS
7120 PRINT"BACKGROUND COLOR=";C0
7130 INPUT C0
7140 PRINT"LUMINANCE=";L0
7150 INPUT L0
7160 PRINT"CHARACTER COLOR=";C1
7170 INPUT C1
7180 PRINT"LUMINENCE=";L1
7185 INPUT L1
7190 PRINT"MULTI COLOR 1=";C2
7200 INPUT C2
7210 PRINT"LUMINENCE=";L2
7220 INPUT L2
7230 PRINT"MULTI COLOR 2=";C3
7240 INPUT C3
7250 PRINT"LUMINENCE=";L3
7260 INPUT L3
7270 PRINT"BORDER COLOR=";C4
7280 INPUT C4
7290 PRINT"LUMINENCE=";L4
7300 INPUT L4
7310 COLOR0,C0,L0:COLOR1,C1,L1:COLOR2,C2
,L2:COLOR3,C3,L3:COLOR4,C4,L4
7320 RETURN
8000 SCNCLR:RETURN
```



by Robert Schifreen

Want to contact the Happy Hacker? He's on Prestel page 6001880. Or you can leave a message for him on the VISA Prestel-standard bulletin board, between 8am. and 11pm. on 01-958 7098. No good? How about American People/Link, using the 'Hex Maniac' ID, or Compuserve, using 74106, 1637? Failing all that, you could just write to him at: Commodore User, 30-32 Farringdon Lane, London EC1 3AU.

Telesoftware sense

At long last, someone has done something to remedy the daft situation regarding use of Micronet telesoftware with the Compunet modem. And all credit goes to — Micronet. If you are a Compunet user, you may have downloaded the program called *Viewdata*, which allows your Compunet modem to link up with Micronet. Although this allows you to view the Micronet database, it does not let you download most Commodore 64 telesoftware from Micronet. However, Micronet have published a program which replaces Viewdata, and that will let you use Micronet to its full potential on your Compunet modem — including the telesoftware.

The program, called **Commodore 64 Terminal**, is free and works with both cassette and disk systems. You download it with a Compunet modem and Viewdata program (it's one of the few programs that does actually download with the Compunet software) and, from then on, use the Micronet version instead of the Compunet one. As well as allowing you to download Micronet software, Terminal also has the following features:

- **Printer type** — Any ASCII printer can be used to print out the text from Prestel frames. An Epson or Kaga printer will print full graphics dumps. The software also supports Centronics printers connected via the user port.
- **Offline mailbox editor** — used to edit frames on disk or in RAM. Editing controls include full insert and delete facilities, and colour codes. The frame can then be sent to Prestel.

Logging on is the same as with the Compunet Viewdata program. The Micronet version, though, also features a call timer which will tell you how long you've been using the phone. A help page is also there, to remind you what all those keys do. Pressing f2 will give a directory of a disk while you're online, though with the speed of the 64 disk drive it may increase your phone bill.

The downloader will now download complete Commodore 64 programs straight to tape or disk.

In addition to sending mailboxes which have been prepared offline, whole files can also be sent. Files can be normal ASCII or Commodore ASCII. Even a frame held in RAM can be sent, to save loading it from tape or disk. The program was written by *Y2 Computing* and occupies a full 71 frames, so make sure that you have enough space on your disk to save it. Full details from Micronet on 01-278 3143 or, if you're a member, see page 700690.

Look — no micro!

If you use a *Miracle Technology* modem with your 64 to access Micronet, you may already have everything you need to set up the crudest Bulletin Board possible! Providing you have the auto answer board in your modem, and that you have a printer with an RS232 interface.

What's more, the system won't tie up your 64. Just plug the output from the modem (the RS232 lead) directly into the printer. That's it. Anyone with suitable software can call your board. The modem will answer the phone, and everything they type will be sent straight to the printer. Well, I told you it was crude, but it works.

If you happen to know of any real Bulletin Board software for a Commodore micro, or can recommend an existing board with useful information for Commodore owners, let me know.

Celebrity Chatline

Micronet's publicity department has been springing into action again this month to bring the world **Celebrity Chatline**. The Chatline service itself is operated by Micronet and allows subscribers to send a message via Prestel, which is automatically published on the system within around two minutes. Others can then read the message and supply suitable replies or comments. Following the success of the venture (Chatline's accesses are second only to Micronet itself), Editor Babsky has come up with Celebrity Chatline.

David will be visiting the homes of celebrities, modem in hand. The idea is that Micronet's subscribers can conduct the first ever live interview on Prestel. Victims lined up include the producer of "4 computer buffs", Michael Feldman, Derek Meakin of Database Publications, micro journalist Guy Kewney, Mike "Lords of Midnight" Singleton and Paul Duffy from GOSH.

Hacking in the USA

You may have read recently about a Los Angeles Bulletin Board operator accused of publishing the numbers of stolen credit cards on his system. Last month, the case against 34-year-old Thomas Tcimpidis was dropped, probably through lack of evidence. The reason for the worldwide interest is that it was a caller who had posted the numbers on the board, yet the Sysop (system operator) was held responsible. Tcimpidis is still operating the board, despite advice from his Attorney.

Meanwhile, an American high school student found himself in deep water last month, when he was caught trying to crack Stanford University's computer system. According to the computer's records, the student made 460 calls to the system over one weekend, in an attempt to crack the eight-character password. His idea was to change his classmates' exam marks, and charge them $100 a time.

OEL OK?

Finally, modem makers OEL have been having a rough time recently. Stories circulating at the time of writing (late March) suggest that the company has gone into receivership. OEL make the Micronet cartridge for the 64 and are also about to release their comms system for the Sinclair QL. More news as we have it. Meanwhile, this is HH saying BFN. □

What's on Micronet and Compunet

UTILITIES FOR ALL

Recent utilities for the Commodore 64

The Commodore 64 gets older by the day, but new utility software keeps on appearing for that stalwart machine, especially extended Basic programs. We've rounded up three recent offerings: Breden's Basic, Superbasic and Mushroom's Extended Basic. For machine-code boffins, we've gathered together the latest Assemblers from Merlin and First Publishing. Or how about a Spectrum simulator or a fast disk compiler?

by Steven Jedowski



Extend your Basic

Unlike most other extended Basic packages **Breden's Basic** from *Visions* includes both disk and cassette versions as standard. This is obviously a great advantage for someone currently using cassette software but contemplating upgrading to disk at some future date. With Breden's Basic installed you have 29695 Basic Bytes free. The manual is of the now almost legendary spiral-bound variety but with very important differences. The cover is made from a heavy duty cardboard and the inner pages from paper which does not curl up at the edges after repeated use.

Breden's Basic is a very well presented package which covers all areas of programming. The manual devotes one page to each of the 125 extra commands available. These include over 40 graphics commands, 11 of which are concerned with the creation and manipulation of sprites.

Another area well catered for is that of sound control; that is, easy access to the 64's SID chip and all its facilities. Twenty-two commands are included to make SID that bit 'friendlier' with the manual detailing the correct syntax for each command. A 'HELP' command is useful for showing up any errors and the 'HLIGHT' command highlights (in reverse field) any Breden's Basic command when listing to the screen or printer.

However, the dedicated programmer might be a bit disappointed by several omissions. No 'auto line numbering' or 'renumber' facilities are included which for the user who taps in a lot of his own programs is a very serious deficiency. Although Breden's Basic is an excellent package in most respects, at the high price of £39.95 I would expect it to be perfect. It's available from: CSM Ltd, Suite 38, Strand House, Great West Road, Brentford, Middx (01-560 4191).

Supabasic from *Interceptor Micros* is an altogether more modest attempt at making up for the deficiencies resident in Commodore Basic, adding 72 additional commands. This is not to dismiss it immediately since at the lower price of £9.99 (cassette or disk) it cannot be expected to compete on facilities.

The manual is a 40 page booklet (not spirally bound) which although considerably smaller than that supplied with Breden's Basic does appear to contain all the information necessary to use Supabasic to its full.

There are 28 graphics commands, almost half of which are used for sprite creation and manipulation. Sound control seems less well supported with only five commands; but the degree of control of the 64's SID chip is still quite impressive and certainly considerably easier than using endless 'POKES'. As with Breden's Basic there is no 'auto line numbering' facility, but a 'renumber' command has been included. However, its use is severely restricted since it will not automatically renumber 'GOTOs' and 'GOSUBs'. Its inclusion as a serious programming 'aid' is therefore questionable.

With 30719 Basic bytes free for program use with Supabasic installed, the package gives a good set of extensions to Commodore Basic. At its price it represents good value for money. Interceptor Micros live at Lindon House, The Green, Tadley, Hants (07356 71145).

Our third extended Basic is from **Mushroom Software**. What separates their attempt from those already on offer

from Visions (Breden's Basic) and Interceptor Micros (Supabasic) is the inclusion of an assembler. This brings it into line with machines like the BBC Micro which has a modern dialect of Basic and a machine-code monitor/assembler built in as standard facilities.

The program is considerably longer than either Breden's Basic or Supabasic, being 16K in length although only 2.5K is taken away from the 38K available to Basic on power up; leaving a healthy 35.5K for program use. It includes 51 extra commands, 10 extra control codes and a 2/3 pass assembler.

The manual comprises a 60 page booklet which would not win prizes as a work of art but all the necessary information is included with one page dedicated to each of the available commands. However, after a few hours extensive use the pages were already curling at the edges.

Graphics and sound are again well catered for although the format of the commands differs from those adopted in the other Basic Extension packages. Programmers can raise a cheer since 'auto line number' and 'renumber' have been fully implemented.

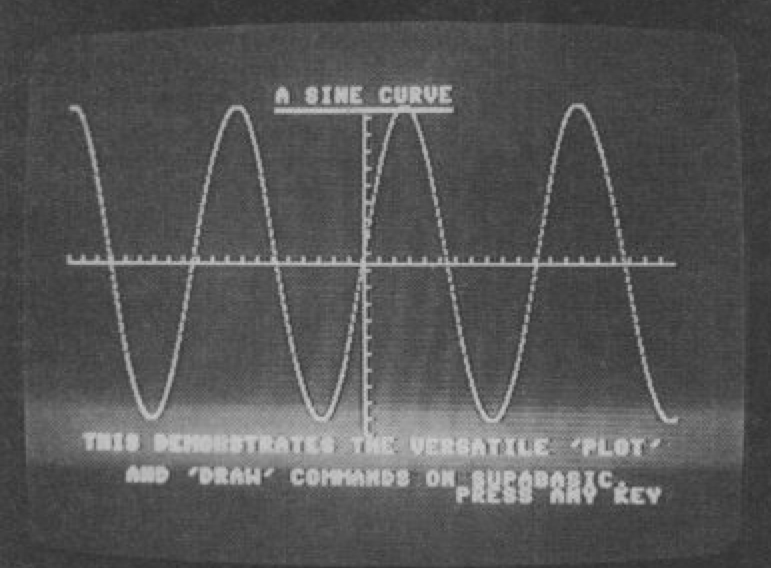
The inclusion of an assembler is a bonus for anyone thinking about entering the world of machine-code programming. But beware, this package is not a beginner's guide to machine-code and makes no attempt to introduce the subject although the assembler is fully explained for those who have some knowledge of writing in assembly language. For those not so versed there are many good books available on introducing machine-code programming.

The package at £19.50 (cassette) and £21.50 (disk) represents very good value for money and would make a worthwhile investment even for someone not currently needing an assembler. Mushroom Software are at 193 Rommany Road, London SE27 9PR (01-670 3533).

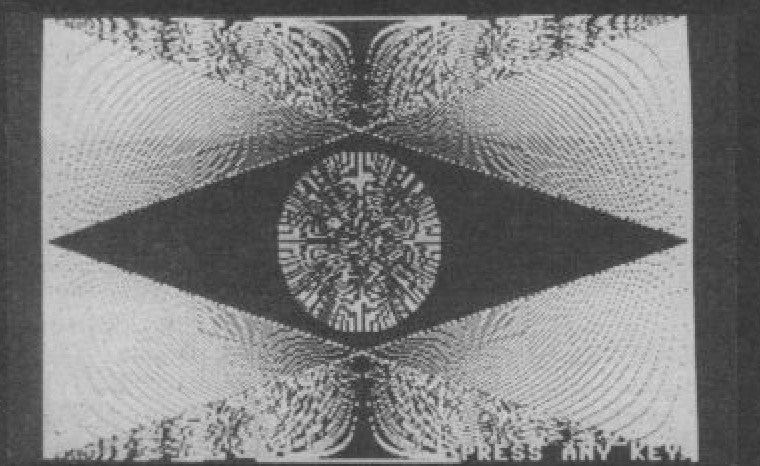


Speed up your 1541 with Quickdisk

Supabasic's 'demo' mode shows how plot and draw commands can be used



Another graphic demonstration on Supabasic



Assemblers assembled

Fassem from *Merlin Software* is an Assembler/Disassembler for the 64 with its own 'mini-Basic' included. These consist of useful toolkit functions such as Renumber, Auto Line Number, Delete and Disk commands. In fact, Fassem claims to be the fastest machine language assembler of its kind available. Limited tests proved that it was definitely fast but speed only really becomes a problem when working with large programs, so for many people the speed advantage may not be that important.

The assembler source code is entered in much the same way as you would enter a Basic program: using line numbers. Standard 6510 mnemonics are used and no spaces are required between mnemonics or operands. As in Commodore Basic multi-statement lines are allowed although the manual correctly points out that single statement lines are easier to read and correct at a later stage if necessary.

The manual supplied with Fassem is a 12-page cassette-sized booklet which, although adequate, is not that 'friendly' and therefore not really suitable for the novice. There is also a character editor included which allows two different character sets to be defined at the same time.

Fassem is available on cassette or disk at £14.95. It's produced by Merlin Software who can be contacted at Bessemer Drive, Stevenage, Herts (0438 316561).

Another development package for the 64 is **Assembler Monitor 64** from *First Publishing*. Unlike Fassem the manual supplied is substantial, both in size and content, comprising 37 pages in a neat small ring binder. The text shows some signs of its German origin but this is not really obvious. The package comprises two programs, the Assembler and the Monitor, and each can be loaded independently or used concurrently.

The Assembler is 8K in length and leaves 30717 bytes when installed. The Assembler protects itself from being overwritten by Basic. Assembler 64 uses the MOS standard of source format although there are some differences which are fully explained in the manual. The Instruction Manual is not intended to act as a 6510 Assembly Language Tutorial although there is a lot that can be learned by reading its pages. There is a very useful section on Macros and their use complete with demonstration programs.

The Monitor program provides the normal facilities expected of such a utility and, like the Assembler, is also well documented. It can run independently or concurrently with the Assembler and together make a very good machine-code development package.

Unfortunately, this program is only available on disk at £19.99. It's produced by First Publishing, Unit 20B, Horseshoe Road, Horseshoe Park, Pangbourne, Berks (07357 5244).

Exmon 64 is another product from *Interceptor Micros*. As its name implies it is an extended machine-code monitor for the 64. A six page booklet explains the facilities provided. These are the normal 'Monitor' facilities but with some interesting calculator functions particularly useful for those not used to working in hexadecimal.

Hex to decimal and

UTILITIES FOR ALL

decimal to hex converters are provided and so are functions to calculate hex offsets and carry out addition and subtraction in hex. This makes the Monitor a handy tool for the beginner.

At £7.99, Exmon 64 represents good value for money. See above for Interceptor's address.

Simulate the Spectrum

Have you ever wanted your Commodore 64 to act like a Spectrum? If this has ever been your sole desire, then *Whitby Computers* have now answered your prayers. **Spectrum Simulator** allows your 64 to be transformed into a Spectrum. Fortunately this does not include the transformation of the Commodore's 'real' keyboard into the Spectrum's 'soggy' variety. But all other facilities are supported including the Spectrum's one key entry.

The Simulator will run virtually any program written in Spectrum Basic without modification except where the program makes use of machine-code calls from within the Basic program (the Spectrum USR command). With the Simulator loaded into memory you have about 30K bytes to store your Basic programs or load programs written in Spectrum Basic. As already noted, no programs written partly or totally in machine-code will load so many commercial Spectrum programs will not run with this simulator.

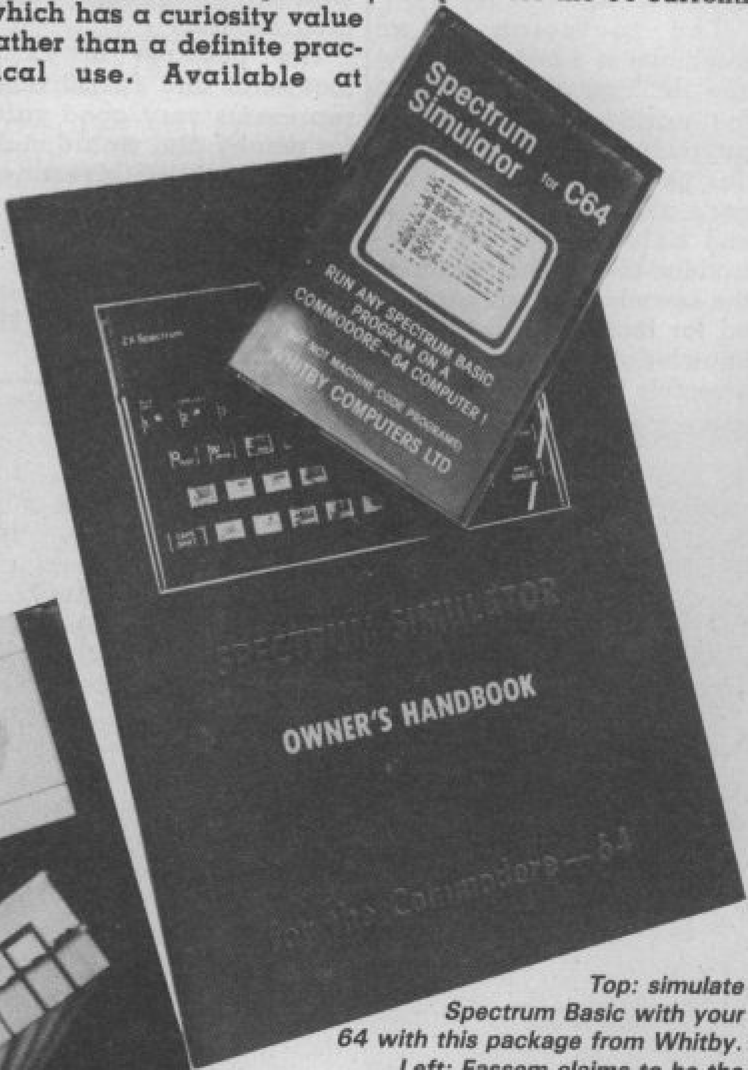
One of its main benefits is that it gives the 64 a version of Basic which is a bit friendlier than Commodore's own. However, it depends on your opinion of Spectrum Basic; if you progressed from a Spectrum to a 64 then you will feel at home. If you feel the need for a better version of Basic, then a Basic Extension package will probably serve you better.

Whitby Computers have come up with a product which has a curiosity value rather than a definite practical use. Available at £14.95 on cassette, it will doubtless find an audience amongst those eager to explore other worlds. Whitby is at 8 Chubb Hill Road, Whitby, N Yorkshire (0947 604966).

Disk utilities

The last two items in our round-up are only available on disk. The first of these is a compiler from Stack Computers and the second is a Fast Disk Utility from the same stables as Disco (tape to disk utility) which gives patient 1541 disk drive users a much needed boost.

The **Mini-Blitz Compiler** is a disk-based program for the 64. That's nothing new; what is new is the price, which at £9.99 must be the cheapest compiler for the 64 currently





Top: simulate Spectrum Basic with your 64 with this package from Whitby. Left: Fassem claims to be the fastest assembler of its kind

available. The program translates Basic program files into a special p-code which will be executed many times faster than the original Basic program.

This is particularly noticeable with programs involving graphics where any allowance for the speed increase will have to be made in the original Basic program prior to compilation.

Mini-Blitz will recognise many extensions to Basic itself. If it fails to do so then these extensions may be forced by preceding them with a pair of colons. The whole compilation process takes two passes but the compiler does all the work and you are left with the compiled version of your program.

Note that after compilation the program name is preceded by a 'C/' prefix so one program which then loads another compiled program will have to take account of the amended program name.

Mini-Blitz works very well and is recommended to any disk drive user who has not already added a compiler to their software library. Although Stack is no longer trading, its products are still available in the shops.

Quickdisk 2 is a fast disk utility for the Commodore 1541 disk drive, which claims to speed up operations by four to five times. The main disadvantage, before you all rush out and buy one, is that it will not work with all commercially available software. *Micro Centre*, who market this *Softsel* production, are quite honest in admitting its limitations. As a general rule heavily protected software will not like Quickdisk.

Apart from the quick loading system, which consistently loaded software up to four times faster than normal, there are several other useful utilities included; the most interesting is Menu Maker which allows you to create a menu of programs on the disk and then by the selection of the appropriate numerical key load the program. This can be used with or without the quick load system.

The disk also includes a program to convert programs previously saved with Disco (Softsel's tape to disk utility) to work with Quickdisk. *Disk Trainer* claims to be a useful utility for checking the efficiency of your disk drive. Any faults isolated by this program would probably become immediately apparent through programs (including disk trainer itself).

Quickdisk 2 which, unlike Quickdisk 1, allows the use of a printer or a second disk drive, is a most welcomed utility for the 1541 user. At £11.95 no 1541 user ought to be without one. Softsel are at Softsel House, Central Way, North Feltham Trading Estate, Feltham, Middx (01-844 2040). □





Already before its scheduled UK launch in June, the C-128 is stimulating claims that it's really three computers in one, that it's the 64's natural successor and that it will bridge the gap between home and business computing. Commodore can hardly contain its corporate excitement and neither can anyone else who's actually seen the machine. Raeto West has seen and used one of the rare pre-production models. Here's his considered report.

by Raeto West

THE COMMODORE 128 AN EXCLUSIVE

Considering that the computer market is becoming saturated with currently available styles of computer, and that the C-16 and Plus/4 were ill-planned and initially ill-received, there's more pressure than ever on Commodore to make its new C-128 a resounding success.

It's more than likely that the machine will be assembled (if not manufactured) in the UK, as soon as its pre-production problems have been ironed out. At the time of writing, a final specification had been worked out to be implemented for eventual production. What follows is provisional to the extent that Commodore UK has not, as yet, received a final working model.

Exterior looks

At first glance the C-128 looks like a business computer, with its slim, gently sloping keyboard and de rigeur porridge-cream colour. There's a whole load of keys too, including a numeric keypad and a full set of cursor and function keys. But home computer buffs will also find the familiar Commodore graphic symbols in their usual place — on the vertical side of the keys. The Commodore key hasn't been forgotten either. There's sense in all this, since the 128 acts like a 64 in one of its modes.

Round the side, there's two D-type joystick ports, power on/off switch and the power socket — just like the 64. But the mains transformer is bigger than ever, not unlike a brick, in fact. There's a reset switch too, the operation of which is yet to be finalised since it's 'warm-start' facility can aid illegal copying of protected software.

Moving round to the back, there's nothing really new. From right to left, there's the cartridge port, cassette port, serial port, audio/video port, TV socket and user port. The only addition to the 64 layout is the RGB monitor output. More about that later.

Now that you've looked round the machine, let's plug it in. The 128 works in three modes: 64 mode, 128 mode and CP/M mode. In the latter two modes you can work with a 40 or 80 column screen — so that gives you five modes in all.

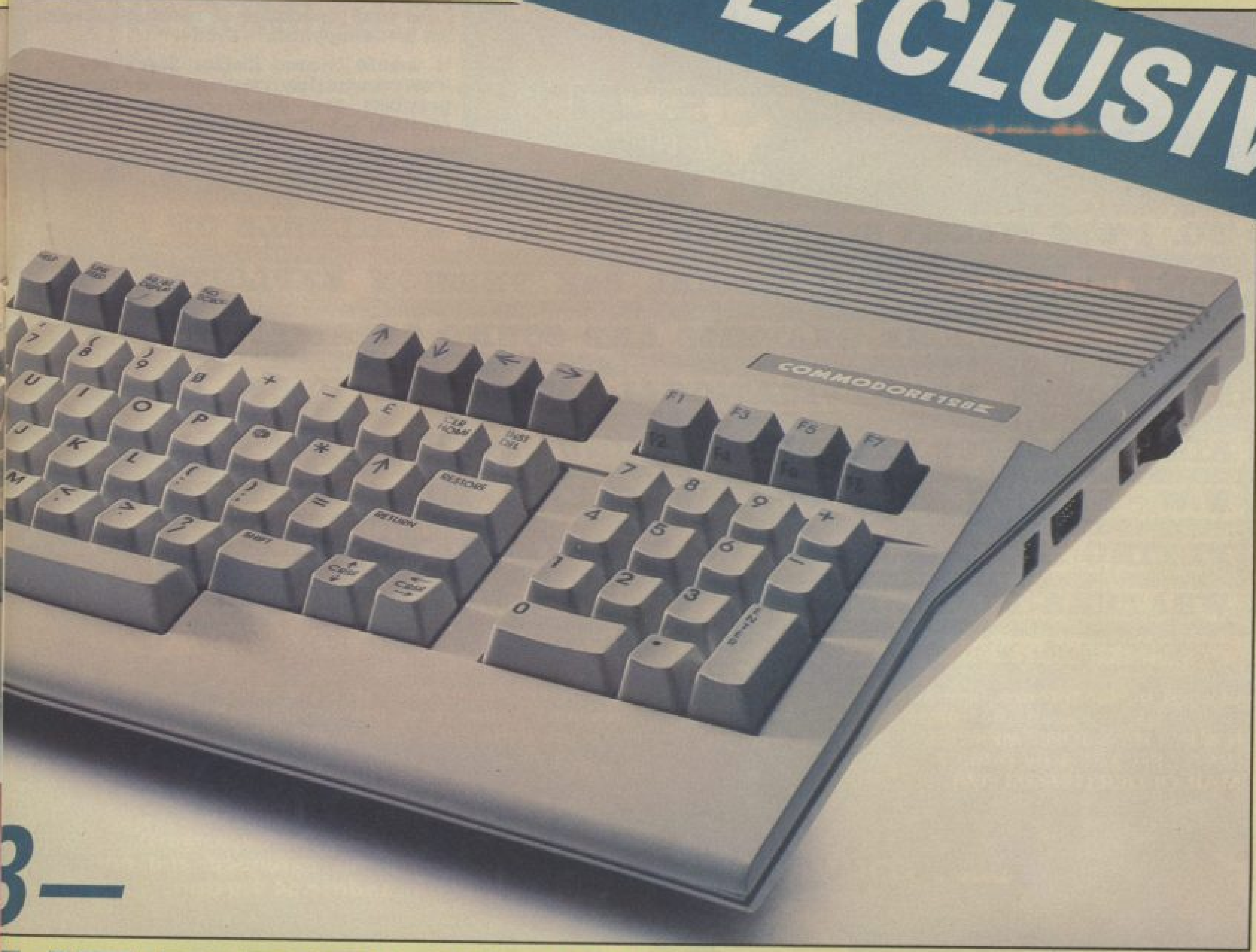
Commodore 64 mode

After the 64's huge worldwide success, Commodore has decided (for the first time) to go for a genuine upgrade. Virtually all 64 software will run on the 128, whether it's on cassette, disk or cartridge. Although the machine powers up in 128 mode, entering **GO 64** switches to 64 mode. From that point, you're working with what amounts to a real 64. Once in this mode, you can't get out again without turning the machine off.

All the 64's keys are here, including extra keys like HELP, TAB, ESC AND CAPS LOCK. The VIC and SID chips, user port, joystick and lightpen connections have all been carried over. Although, virtually all 64 software will run, exceptions seem to be programs which use 'illegal' or undefined opcodes, which presumably work slightly differently on the 8502 chip, and some rare programs which use calls to the 64's old ROMs (those don't work on all 64s anyway). Moreover, you won't get an 80-column display or access to the extra memory in 64 mode.

On the Basic front, Commodore must have had to decide whether to make 64 and 128 Basic compatible, in the sense that simple Basic programs without POKEs or other very specific commands could be made to work on either. At the time of writing, though, I don't know whether 64 keywords are stored as a subset of 128 keywords. If they are, simple Basic programs would look the same in the 128's 40-column mode as in 64 mode, but programs in-

EXCLUSIVE



128— [EXCLUS]IVE PREVIEW

corporating 128 keywords would LIST oddly in 64 mode and, of course, not work. We'll wait and see.

The 128 mode

On powering up, the machine automatically switches to 128 mode with a 40 column display. There are two exceptions: 64 mode is implemented if it detects the presence of a cartridge, similarly CP/M mode is set up if the CP/M disk is present in the disk drive.

The opening display indicates around 63K of free RAM and that you're working with Basic version 7, presumably to show you it's much better than 64 Basic and twice as good as Basic 3.5 on the 16 and Plus/4. In fact, it has around 150 keywords, that's more than any Commodore Basic so far produced.

The processor is an 8502 (similar to the 6502 and 7510), but it's an 8-bit chip so the 128K of RAM implied by the machine's name is arranged in two 64 blocks. These, unless reprogrammed, have 1K RAM in common at the low end of memory, allowing storage of machine-language to select a bank where it won't suddenly vanish. The first 64K bank holds program text whilst the second holds the variables.

Basic programs can't be anything like 64K, though, because the first bank also has many working storage areas used during Basic program running: for example, function key definitions (more about that later), disk commands, RS232 buffers, screen and colour RAM information and sprite storage (there appears to be space allocated for only eight of these). The 128 has a memory management unit (MMU) similar to the 64's PLA, which it in effect includes as a subset.



Top left: the complete colour-coordinated kit, featuring C128, C1902 colour monitor and 1571 disk drive. Above: 128 mode gives you an 80-column display, 16 colours and the complete Commodore graphics set.

TELEGRAM

URGENT!

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"I would choose Doctor Soft's 747 . . . instrumentation clear and unfussy . . . graphics are good . . . smooth and realistic" – Software Today

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BBC

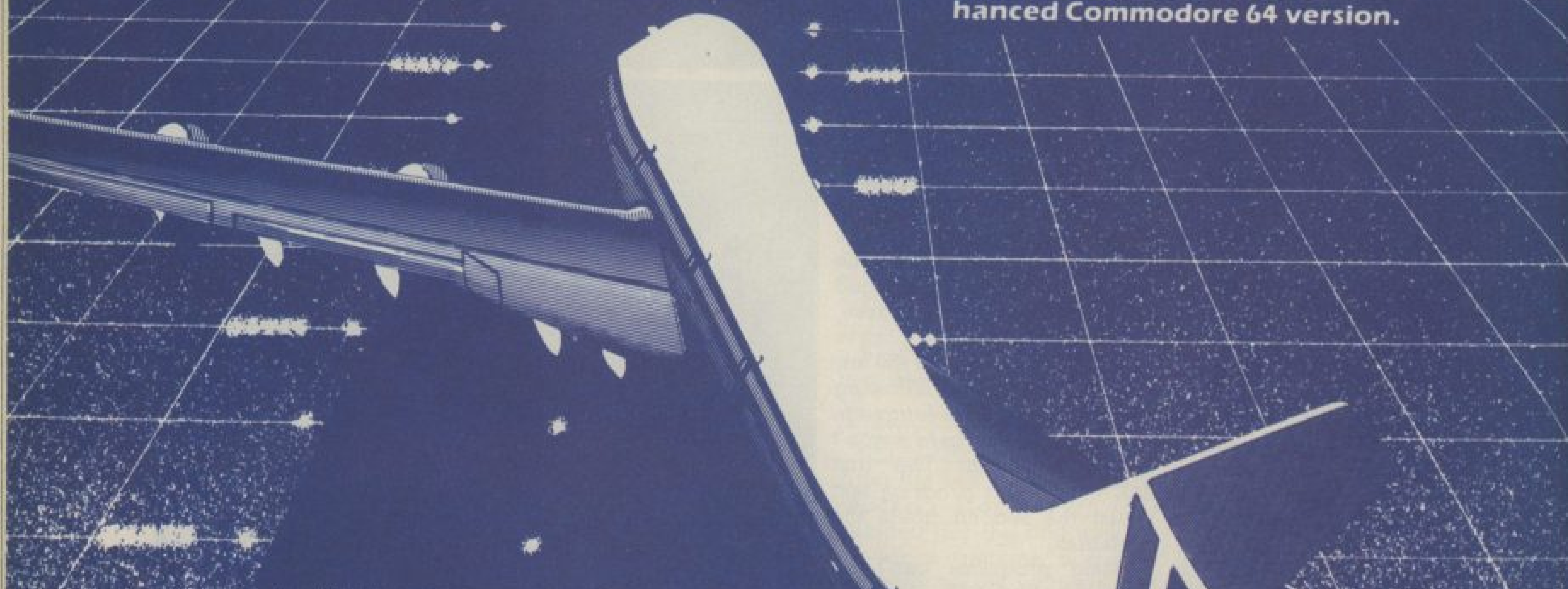
ELECTRON

COMMODORE

747 and other Doctor Soft programs are available from:
- W H SMITH
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- BY DIRECT MAIL ORDER (SEE BELOW).

747 is no ordinary flight simulator, BBC owners know it as the program that topped the BBC charts month after month last year.

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CU

THE COMMODORE 128 — AN EXCLUSIVE PREVIEW

For memory expansion, there's space for another two banks of 64K RAM, perhaps as a 128K 'RAM disk'. This would be a battery-backed RAM pack, designed with its own device number to behave like a disk unit, allowing very fast access to data as no data transfer along a cable is required. Potential uses might include fast access to relative files, or storage of CP/M files (limited, of course, to 128K).

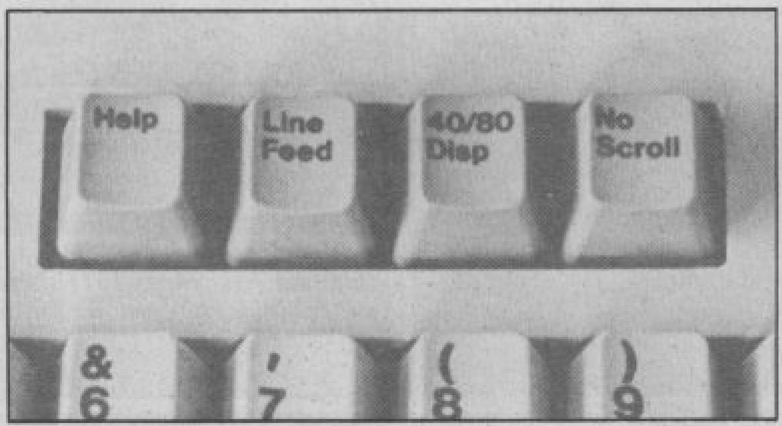
80 columns in 128 mode

Powering up with the 40/80 column switch set at 80 gives you an 80-column display. Alternatively, CTRL-X toggles you between the two, irrespective of the switch's position. But there are differences between the modes. 40-column mode uses the VIC 11 chip and sprites, just like the 64. 80-column mode uses the brand new 8563 video chip which is more advanced than dear old VIC and operates differently.

A major novelty is the 8563's dedicated RAM. Rather than use a chunk of Basic RAM to store bitmaps or character definitions, the chip has its own memory which is invisible (transparent) to the user. One advantage of this is that if you shift between upper/lower case mode and upper case/graphics mode, the other parts of the screen don't change and there's not the usual maximum of 256 characters on screen at any one time. That's pretty neat.

Like the 64, though, the 8563 has smooth scrolling, facilitated by allowing movements of the screen under control of several bits. The chip has no sprites but does have a block copy facility. So you can shift parts of the screen around (probably using the WINDOW command) more or less instantaneously.

The obvious problem with using an 80-column display is that you need a monitor — a TV and even the Commodore 1701 monitor just won't do because they don't have the pixel density. But more about the new monitor later.

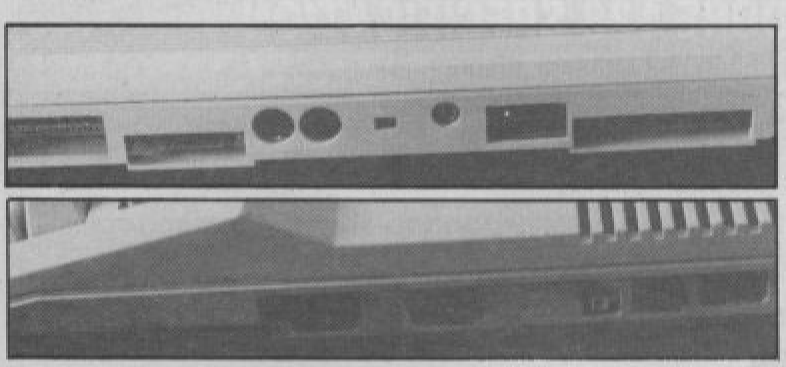


Four keys used only in 128 mode: 'Help' highlights errors in a Basic line, 'Line Feed' moves the cursor down, '40/80 disp' toggles between the 40 and 80-column display, and 'No Scroll' allows you to view a listing screenful by screenful.

Video effects and colour

At time of writing, I don't have the information to judge whether video effects would be faster than sprites. Presumably you'd have to write a subroutine to move several sets of memory locations to give animation effects. In fact, there should be no restriction on size, as there is with sprites — so the results should be better than the 64.

Turning to colour, the 8563 allows four bits to a pixel — red, green, blue and intensity. So you get eight colours and the same at half-intensity, making 16 (15 actually, because half-intense black is still black). Wordprocessing with dual-intensity letters should be just fine on the 128. The chip also supports double-width characters, underlining, flashing and cursor controls.



Top: rear view of the 128 showing (left to right) user port, RGB output, TV, output, audio/video socket, serial port, cassette port and cartridge port.
Bottom: side view showing (left to right) user port, RGB output, TV socket, video/audio socket, serial, cassette and cartridge ports.

The C-128's Extended Basic

The new Basic seems to be made up of the best parts of all the previous Commodore Basics — from the Pet, the 64 and the 16. For example, you can use the ESC key for fancy screen editing (providing you can remember what the keys do): ESC-D for example, deletes the current line. You can also set up a screen window and use the CTRL key for extra things like underlining.

Graphics commands include DRAW, CIRCLE (which also draws polygons), BOX for drawing rectangles, and PAINT which fills in any enclosed area on the screen. BUMP tests for sprite collisions, whilst RSPCOLOR, RSPPOS and RSPRITE return various sprite details. SSHAPE and GSHAPE allow movement of sprite memory (as in the 16). From this, you'll gather that some of the Basic graphic commands are intended for 40-column mode and won't work with 80 — and vice versa.

For sound and music production, there's the ENVELOPE (ADSR control), FILTER, SOUND and PLAY commands. There's also a TEMPO command that lets you assign a speed to a defined set of notes to be played. But, again, you're restricted to the three voices provided by SID.

Disk commands include DLOAD/DSAVE, DVERIFY and BOOT, as well as the traditional APPEND, BACKUP, CATALOG, COLLECT, and the rest. No other Commodore Basic has all these. It's worth mentioning that in 128 mode, some of these commands are allocated to the function keys, including RUN, LIST and SCR.

F8, for example, gets you into the monitor program provided in Basic 7; there are also structured loop commands like IF . . . THEN . . . ELSE, a lot of utilities like DELETE, RENUMBER and TRAP/RESUME (for trapping and correcting errors). In short, there's quite a bagful of Basic here.

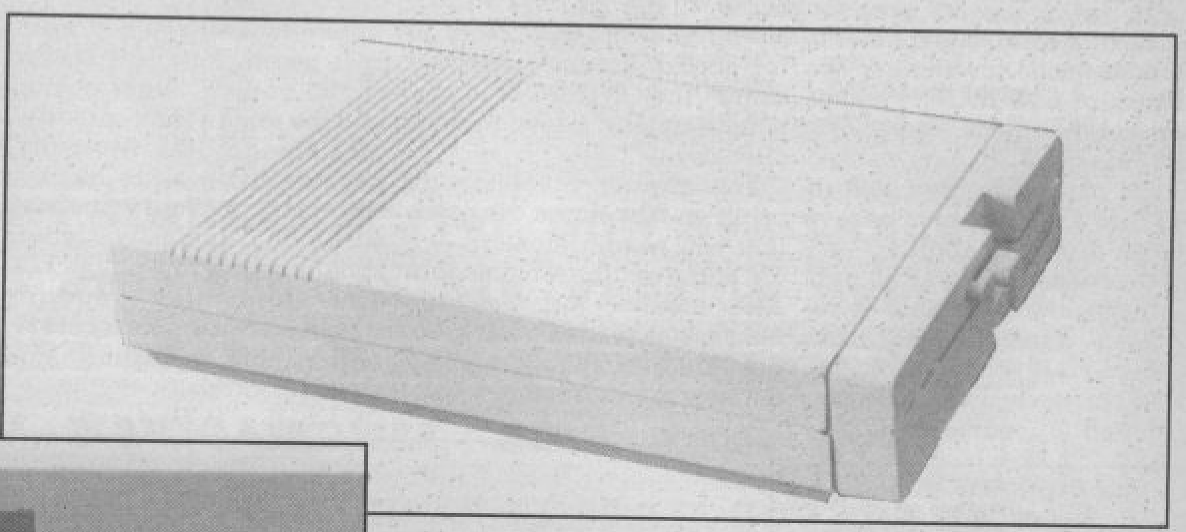
The CP/M mode

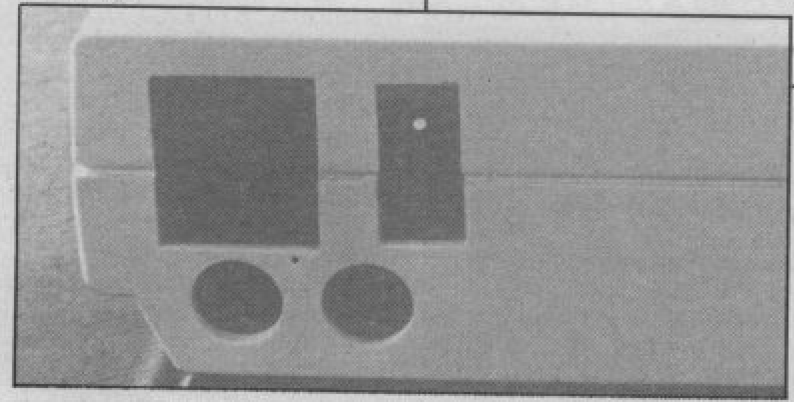
Getting into CP/M mode is achieved simply by booting up the CP/M disk in the 1571 drive. This converts the 128 into a 40- or 80-column CP/M machine, using the latest version, CP/M 3.0. Column size is selectable by the switch or a software command. Since virtually all business software uses 80 columns, we'll concentrate on that mode. By the way, video and sound effects can't be used in the CP/M mode.

So what's CP/M? It's an operating system and monitor program designed by Digital Research for the now geriatric Z80 8-bit processor (similar to the 6502 but with different instructions). By itself, it doesn't do much more than recognise a handful of disk commands, and perform a set of input/output routines. But it does conform to a standard, and there is a wealth of (mainly business) software that runs under it.

Needless to say, to handle CP/M the 128 has the Z80 chip built in, but the input/output parts are written to select the 8502 processor, use the Kernal ROM to read the keyboard or print to screen, and then return to the Z80.

Now for the big question, is CP/M any use? Technically, that will depend upon the effective working of the new 1571 drive (read on), but there are hundreds of CP/M programs, and it does have a large following even though business users have and will continue to adopt 16- and 32-bit operating systems. You never know, the 128 could cause a resurgence of interest in CP/M.





Top: 1571 disk drive — intelligent enough to work in three modes and a variety of speeds.
Left: rear view of the 1571 showing two serial ports, power switch and mains socket — just like the 1541.

Software support

Software houses will, no doubt, continue to produce games for the 64, perhaps adding a routine to automatically switch to 64 mode if a 128 is detected. Why restrict the market by writing especially for the 128, except for long programs like adventures? In more serious applications, business and education for example, 128 mode will become essential.

Commodore itself is placing its software emphasis on the 128 mode and will have a range of 'leisure' software to offer by launch date, including a few adventures. But it's aware that the 128 is an unusual machine, attractive to home and business users, and is being careful not to neglect either area. Already, software houses are adapting existing 64 business packages for the new 80-column format — see News pages for more details.

The C-128D

Last month we reported the integral disk version of the 128, the 128D. Further news from Commodore points to the eventual appearance of a Business Pack that includes 128D, the C1902 colour monitor, printer and a range of business software. The whole lot should sell for just under £1,000, providing business users with a plug in and go system, and one-stop shopping.

Conclusions

If the performance and pricing of the 128, including its disk drive and monitor, are competitive, the machine should appeal to a wide range of people, probably the widest range so far for a computer. It will allow 64 owners to upgrade painlessly and business users will get a satisfactory and cheap package that doesn't look like a toy.

Thirdly, the new powerful Basic should appeal to programmers looking for something to get to grips with.

Now for the price: it's all set to sell at $300 in the States. UK prices should correspond. Without presuming too much, if nobody invents any, ther should be few obstacles to this machines success. □

PERIPHERALS FOR THE 128

- **1571 disk drive:** like the 128 itself, the 1571 works in three modes. In 64 mode it emulates the 1541 drive, offering the same capacity and (slow) data transfer rate. In 128 mode, its speed increases by a factor of six and data storage goes up to 350K. Lastly, in CP/M mode, speeds are increased even further to make the drive compatible with IBM System 34 CP/M date disks, giving 410K of storage. It's beige in colour and offers two serial ports on the back. A double-drive version of the 1571 is also planned with the drives stacked vertically. No prices for either yet.
- **C1902 colour monitor:** once again, beige in colour, the 13-inch monitor offers both RGBI and composite video input. It has a true 80-column screen, essential for getting the best from the 128. Again, no prices.
- **Commodore Mouse:** an optional cable-connected input device. You push it around on a flat surface to control the on-screen cursor. No price yet.
- **MPS 802 printer:** latest dot matrix offering from Commodore. It has an 8×8 matrix, 80-column width and prints bi-directionally at 60 characters per second. Commodore graphics, upper and lower case characters are also available. Unlike the 801, this machine has true descenders. Once again, no prices are yet announced.

COMMODORE 128 SPECIFICATION

	64 MODE	128 MODE	CP/M MODE
CPU	6510	8502	Z80A
MAX RAM	64K	128K (512K expandable)	128K (512K expandable)
ROM	16K	48K	n/a
LANGUAGE	Basic 2	Basic 7	n/a
SCREEN DISPLAY	40 by 25	40 by 25, 80 by 25	40 by 25, 80 by 25
RESOLUTION	320 by 200	320 by 200, 640 by 200	320 by 200, 640 by 200
CLOCK SPEED	1.02MHz	10 or 2MHz	4MHz
COLOURS	16	16	16

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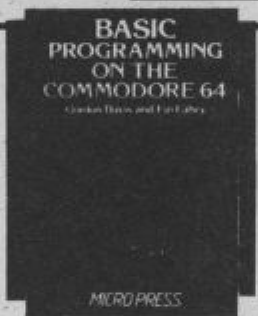


Plus/4 Magic for Beginners

by Bill Bennett

£9.95

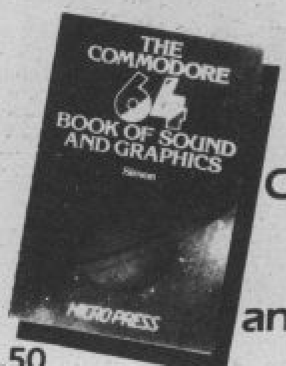
This introduction to the Commodore Plus/4 provides newcomers to the machine with a comprehensive guide to all the facilities available. It includes a review of the machine itself and examines ROM software and hardware and programming.



BASIC Programming on the Commodore 64 £9.50

by Gordon Davis and Fin Fahey

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by Simon **£8.50**

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SCREEN SCENE

The spirit of the Blitz is alive and well in this month's selection of games. There's a head-to-head of Spitfire games and, best of all, our current favourite Dambusters. The flight theme is continued with two helicopter games, one a flight simulator, and an aircraft 'emulator' for the C16. Motor racing also features with a head-to-head of grand prix type games, whilst there's also a chance to be energetic with Imagine's excellent World Series Baseball. Next month there'll be even more reviews. Watch this space!

SCREEN STAR

Dam Busters
Commodore 64
US Gold
Price £9.95/cass £14.95/disk

Presentation: ■■■■■
Skill level: ■■■■■
Interest: ■■■■■
Value for money: ■■■■■

Dam Busters will be launched in two weeks' time to coincide with the fortieth anniversary of Operation Chastise — the historic bombardment of German dams.

The raid was made famous by the film starring the late Sir Michael Redgrave who played the part of Barnes Wallace — inventor of the bouncing bomb used in the raid.

US Gold describe Dam Busters as "their best game yet". That's high praise coming from the people who have brought out some of the best games for the 64 — titles like Zaxxon, Beach-Head, and Solo Flight. It's another of their imported titles — from the little-known Canadian company — Sydney Development Corporation.

This really is a first class game. In it you play seven different characters — the key personnel required to fly the Lancaster to the dams and drop the bombs successfully.

The pilot part of the game is not quite as taxing as a straight flight simulation — but it's no pushover either. Controls to be mastered are a flight-accurate joystick, i.e. up for down and down for up. Standard flight controls like the altimeter, directional compass, artificial horizon, and airspeed must also be mastered if you are to keep the Lancaster in the air.

Two gunners have the hottest seats in the plane. The front gunner controls the twin ·303 calibre FN5 machine-guns and the tail gunner has four FN20 ·303 calibre machine-guns. Shoot 'em up fans will love this part of the game. Graphics are superb and reminiscent of Beach-Head as those Messerschmitts scream in on you.

The front gunner has a second role to play — that of bomb aimer. To bounce the bombs successfully onto their targets two instruments must be used on dam approach. The Bomb Rotation Switch and the Aircraft Altitude Spotlight are used to drop the bomb at just the right angle so that it will skim across the water, bouncing over the defences, and hitting the dam at just the right angle to pierce the several feet thick concrete.

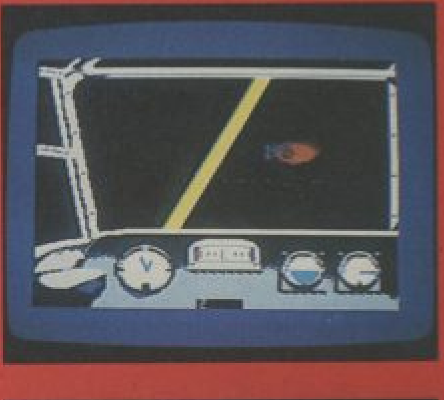
The navigator keeps the Lancaster on course and chooses the targets at the beginning of the mission from a map of western Europe. As well as dams there are airports, military installations, population centres, and industrial complexes.

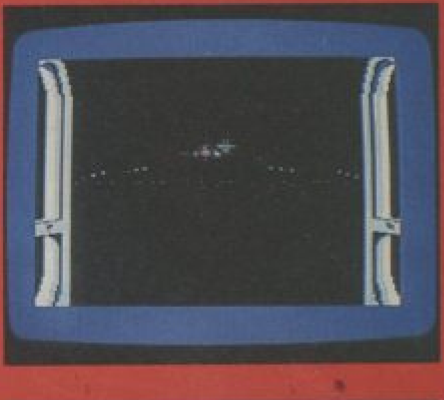
The navigator has one of the most difficult jobs in the plane as a very precise approach to the dam is required if the Lancaster is to drop the bomb successfully and, at the same time, avoid the heavy German defences.

There are two engineers on board. Depending on which skill level you choose to play, you control one or both. Engineer one is concerned with the functioning of the engines. Engineer two — who plays only in the Squadron Leader option — is concerned with the landing and taking-off equipment.

The key to a successful mission in Dam Busters is to master all of the skills and switch between them constantly to check progress. As well as the different role screens there is also a screen showing the dam after the bomb has been dropped, with the water spilling through. A damage and status screen is also incorporated for you to monitor the state of the Lancaster.

This is THE flight game. It has the edge over the straight flight simulation because of the historically accurate mission you are asked to undertake. You do not need to be a budding pilot to get into the game — though the graphics and multi-screen approach give it the feel of a top quality flight sim. The only disappointment is that US Gold could not get permission to use the Dam Busters theme tune on the load screen. It would have been neat to listen to Dam Busters as you fly home after a successful raid. Despite that, the game is excellent and I can thoroughly recommend it. The best flight game yet for the 64.







Top: Pilot's view from the cockpit. Searchlights pan the sky and barrage balloons bar your way en route. The flak is only moments away. Centre: View from the forward gunner's position. Messerschmitt's sweep in unexpectedly. Keep your nerve or you'll never get as far as the dam. Bottom: As navigator you must select your target. You don't have to go dam hunting, there are military installations to bomb if you feel like it.

Rocket Ball
Commodore 64
IJK Software
Price £7.95/cass

Presentation: ■■■■
Skill level: ■■■■
Interest: ■■■
Value for money: ■■■■

Remember *Rollerball*, the futuristic film about a very violent game with manic Bach organ music? Well here's the game. Two teams of five players career anti-clockwise around the circuit looking to nab the ball, batter the opposition and, pot a few goals.

Everything is allowed — there's no such thing as a foul — but the basic techniques of play need practising or you certainly won't get a look in when playing the computer. There are eight joystick actions to master but nothing too involved, it's just a case of knitting everything together to avoid disjointed play. Take on the micro, or slug it out with a friend in this futuristic rough-house of a gladiatorial contest on wheels.

By far the best of IJK's current programs and worth having if you fancy a change from soccer.





Airwolf
Commodore 64
Elite
Price £7.95/cass

Presentation: ■■■■
Skill level: ■■■■■
Interest: ■■■
Value for money: ■■■

Airwolf is based on a TV series which I've never seen, though no doubt it's a Blue Thunder job.

The basic idea is to fly your killing machine through an underground complex of caves where a group of scientists have been imprisoned by a crazed general. Sounds fairly run-of-the-mill doesn't it? Wrong. For a start your killing machine doesn't kill. Then you find out that the chopper is not very easy to control — it reacts to gravity, so you have to keep a very tight rein on it or you end up bouncing off walls like a pinball. Added to this, everything else is stacked against you. If you hit a wall, or something hits you (like the missiles, balloons, cars, flying saucers, the list is nigh endless) you lose a shield. You have nine and if you're not careful they disappear faster than a rat up a drainpipe.



World Series Baseball
Commodore 64
Imagine
Price £7.95/cass

Presentation: ■■■■
Skill level: ■■■
Interest: ■■■■
Value for money: ■■■■

This sports simulation promises 'cheer leaders and all the razzmatazz of the USA', but it's really not that bad at all. As any Englishman knows, baseball is glorified rounders, and nowhere near as good as cricket. Nevertheless, this is a very entertaining game, which attempts to emulate many of the aspects of baseball, including stealing, strikes, and different pitches.

When you're not batting, you pitch and field. Pitching is controlled from the joystick, and you have several options for type of throw.

As batsman you have three types of shot: normal, fast and slow. Hit fire to swing the bat. If you connect sweetly enough you'll hit a home run and romp round the bases to triumphant music, just like Robert Redford in *The Natural*.

Possibly the best option is the



Super Huey
Commodore 64
US Gold
Price £11.95/cass
£14.95/disk

Presentation: ■■■
Skill level: ■■■■
Interest: ■■■■
Value for money: ■■■

Super Huey, which sounds like something you do after ten pints of Owd Roger, is a flight simulator. Not one of the many airplane kinds, but, in common with one of the present flavours of this month, a helicopter one. The difference being that a helicopter, as I'm sure you are well aware, is a rotary wing aircraft and hence flies differently.

Nevertheless, the general flavour of all flight simulators is there with cockpit viewpoint full of instrument panels telling you altitude, speed, direction, etc.

You get four modes of operation: solo flight, exploration, rescue, and combat. The first is self explanatory, giving instruction; the second allows you to fly through uncharted territory and map it out; rescue sends you to pick up stranded personnel in a mountainous region; whilst combat is obvious. My main niggle is with the last of these. There's not enough combat and when I was flying along ten feet off the ground my gunfire was going



Elite
Commodore 64
Firebird
Price £14.95/cass
£17.95/disk

Presentation: ■■■■
Skill level: ■■■■
Interest: ■■■■■
Value for money: ■■■

Elite was the best selling game ever on the BBC home computer, so impressed the software houses that a mad scramble ensued to get the rights to convert the game to other systems. Firebird, the British Telecom software house, won the scramble for a reputed £10,000.

A lot of money to pay for a game that is not original. The first deep-space strategy cum shoot 'em up game was written for the Atari 400/800 and was called Star Raiders.

Star Raiders was never converted to the 64 so Elite, although not an original idea, is at least first on the 64.

The aim of the game is to achieve the supreme ranking of Elite. To do this you have to equip your spaceship, travel the myriad planets in the galaxy, do-



Ice Palace
Commodore 64
Creative Sparks
Price £7.95/cass

Presentation: ■■■■■
Skill level: ■■■■
Interest: ■■■■■
Value for money: ■■■■■

The Kingdom has been cast under a spell of eternal darkness by the wicked Ice Queen. To break her evil spell you must find all seven pieces of the crown she stole from your father, the King, when she killed him.

Events take place in real time over two separate screens. The action screen consists of a honeycomb of hexagonal rooms through which you must move in order to discover clues which will lead you to a piece of the crown.

Your progress is hindered by the Ice Queen's servants, dispatched with maddening regularity in the form of dragons, bats, knives and globules of protoplasm. These can be killed with a bolt from the firestick — your only weapon, but each time you allow yourself to be touched by a servant you will be turned slightly more evil. Your level of goodness can be restored by killing all the servants and entering the spinning cylinder which then ap-

There are some 36 areas of play and so far I've seen about six of them — I can't get any further. If you hit some things, like the boulder, you disintegrate on the spot, which is enough to have you chewing at the carpet if you've put in all the hard work to get that far.

All of which is a great shame, because the graphics are very good indeed, quite spectacularly so. And a good deal of strategy is required to work out what to do and where to go. But I can't help feeling that it would be a better game if it were a bit easier. Obviously it's hard to find the right balance between ease and difficulty. Too much of either and the game goes straight out of the window.

I hope people do persevere with Airwolf, but I'm sure interest could have been sustained if something had made it easier.

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one that allows you to steal a run. This is like legalised cheating, you make a run for another base when the opposition aren't watching. Select your steal option and go for it.

Nothing is perfect and I do have a few grumbles, particularly about playing the computer, because it cheats. I'm not just a bad loser, honest. Sometimes when a batsman hits the ball out they run anyway. That should be a foul shot. Also as batsman against the computer yourself you are given no chance. Unable to direct your shot, you are invariably caught or run out in no time at all.

These grumbles aside, *World Series Baseball* is good entertaining stuff. The graphics are fine, particularly so on the giant 3D video screen at the end of the field, which gives you close-up action of pitcher and batsman.

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over the top of trees.

At least, though, there is something to see on the ground in this program unlike many terribly serious ones which show a horizontal line dividing two areas of green and blue. You know the kind, they're American and often so good that the Russians buy them to discover military secrets about flight capabilities' of the plane.

Control is relatively easy because there aren't too many dials to keep an eye on, but the joystick does have two modes of operation: collective and cyclic. The sound is good with the rotor blades making a nice chopper noise. Personally, as flight simulators go, I'd stick with Fighter Pilot or go for one of the Spitfire simulators reviewed here, but this is pretty good and essential for helicopter enthusiasts. The exact same program is also available through Audiogenic at £8.95 (cass). I'll leave it to you to decide whose to buy.

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ing war or trading — depending on your inclination.

The planets you wish to visit are chosen from an impressive galactic map. The computer keeps a record of your successes and failures. You need to boost your wealth — either by plunder or commerce — to enable you to equip your ship with the technology needed to reach that ultimate goal of Elite.

The 64 version of Elite is easily more impressive than the original BBC version with better sound and graphics and some additional game-play elements.

Elite is complex and challenging. Its strength is that it appeals on several different levels. It is a flight simulation of some merit, a strategy game requiring careful planning, and a damn good shoot 'em up all rolled into one.

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pears in one of the rooms. Occasionally the ghost of the old King floats across the screen and a touch from him won't do you any harm.

Once in a sword room you can discover what's there by switching to the adventure screen. Here you are presented with an inventory of items collected, a scrolling options menu, and a 'status line' which gives responses to your actions in Olde English. A burning candle shows the amount of time remaining and a bar chart indicates your level of good/evil. The game should therefore appeal to everyone, from adventure novice to arcade ace.

For my money Ice Palace is the best game currently available for the 64. The idea is excellent and the sound and graphics are nothing short of superb. If this doesn't inspire you I recommend you chuck your 64 in the bin and take up some other pastime.

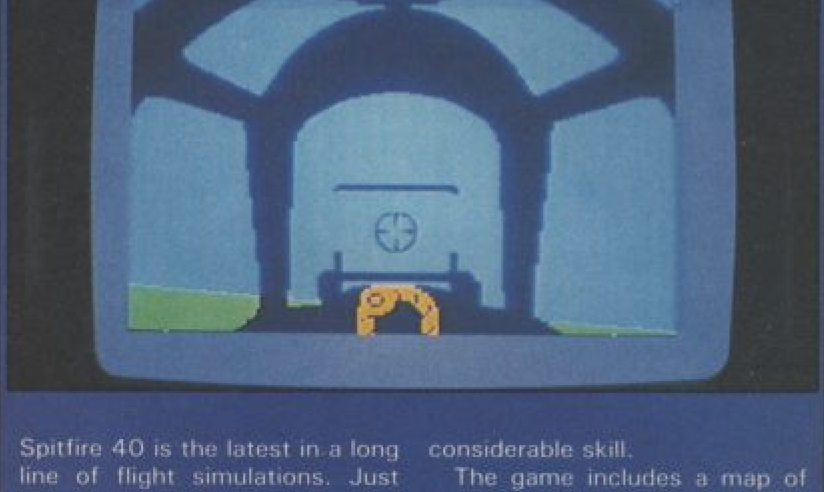
Spitfire 40 VS Spitfire Ace

Spitfire 40
Commodore 64
Mirrorsoft
Price £14.95

Presentation: ■■■■
Skill level: ■■■■□
Interest: ■■■
Value for money: ■■■

Spitfire Ace
Commodore 64
US Gold
Price £9.95/cass
£14.95/disk

Presentation: ■■■
Skill level: ■■■
Interest: ■■■
Value for money: ■■■



Spitfire 40 is the latest in a long line of flight simulations. Just about every conceivable type of aircraft has now been turned into a simulation — from 747s to gliders and jet fighters with a few helicopters thrown in for good measure.

Now nostalgia seems to be taking a grip on the market. This month's Screen Star is the excellent Dam Busters — though the romantic Spitfire gets in on the action as well.

In this head to head review we compare Mirrorsoft's game with Spitfire Ace from US Gold.

Spitfire 40 has the most impressive cockpit display I'v seen on any flight simulation. Several authentic dials and buttons have an authentic gun-metal Spitfire look about them.

Flying the Mirrorsoft Spitfire is a joy. Turn on the engine, take off the brakes, hurtle down the runway and pull back on the joystick and you're in the air. But if taking off is relatively easy, landing and manoeuvring in a dogfight will take lots of practice and considerable skill.

The game includes a map of the South of England — the authentic Battle of Britain location. By pressing a keyboard button a close-up of some of the ground locations is shown.

Spitfire Ace is less of a straight simulation than Spitfire 40. Your plane is represented by quite a small shape on screen. The plane is shown flying low over enemy terrain with its shadow visible on the ground below. Spitfire Ace features 14 different combat scenarios — one of which gives you the mission of defending London during the Blitz. It's gripping, patriotic stuff — as you do battle with squadrons of Messerschmitts and other German bombers.

Spitfire Ace is not quite up to Solo Flight or F15 Strike Eagle standards — the two other flight games from the Microprose-US Gold stable.

It lacks the feeling of flight that you get with the other two. For my money the Mirrorsoft Spitfire game is the better of the two.




BEYOND
CHALLENGING SOFTWARE
WE'VE DESIGNED AN ADVENTURE AND DESTROYED THE TEXT!
SHADOWFIRE USES PICTURES NOT WORDS TO ISSUE COMMANDS.
SHADOWFIRE
COMING SOON FOR SPECTRUM 48K AND COMMODORE 64

SCREEN SCENE

Your 64's gotta lotta throttle with two new grand prix games just out. Pole Position needs no introduction to game fans who will be familiar with it from the arcades where it was one of the biggest hits of all time.

The game was launched originally on the Atarisoft label — a rather pricey cartridge at £31.00, but US Gold have now obtained the rights to the game and produced a tape-based version — at a much more accessible £9.95.

Pole Position features three different race circuits. The first of these is a practice run which is a solo drive with no other racers to contend with.

The easiest of the competition drives is the Monaco Grand Prix with the least number of obstacles to contend with. Slightly tougher is the Namco Speedway — but the toughest race of all is the Datasoft 500.

Graphics are excellent in this game — there is a real sensation of speed and considerable skill is required to drive the car. Nice little touches like the advertising hoardings on the side of the track have been converted faithfully from the arcade original.

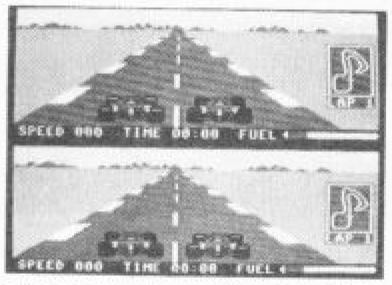
Pitstop II
Commodore 64
Epyx—CBS
Price £14.95/disk

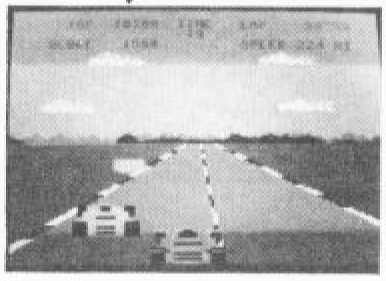
Presentation: ■■■■
Skill level: ■■■
Interest: ■■■■
Value for money: ■■■■

VS

Pole Position
Commodore 64
US Gold
Price £9.95/cass £12.95/disk

Presentation: ■■■
Skill level: ■■■
Interest: ■■■
Value for money: ■■■





Pitstop II is an Epyx title — sold in the UK by CBS. This promised well, as the last CBS/Epyx disk I played was Impossible Mission — last month's Screen Star and one of the best computer games of all time.

Six real circuits are on offer here: Brands Hatch, Hockenheim, Sebring, Watkins Glen, Rouens Les Essarts and Vallelunga. The game uses a unique split screen technique to enable you to race 'head to head' against an opponent or the computer.

There are several game play options — including skill levels, name and opponent's name (I was Nelson Piquet and the 64 was Nicki Lauda). The graphics in this game are head and shoulders above Pole Position. The strategy element of having to change tyres in the pits also adds an extra degree of realism.

If you were hooked on Pole Position in the arcades you probably won't be able to resist the 64 version but for my money Pitstop II is the better game.

Mama Llama
Commodore 64
Llamasoft
Price £7.50/cass

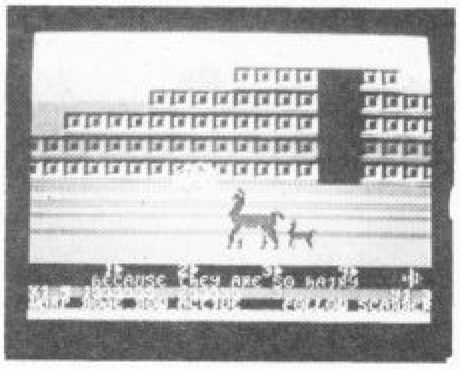
Presentation: ■■
Skill level: ■■■
Interest: ■
Value for money: ■■

Mama Llama is another comic shoot 'em up which pretends to be very different, and very wacky but is plain boring.

You're supposed to spirit a mummy llama and her two sprogs across lots of screens whilst shooting holes in yaks and goats and other shaggy critters with a 'killdroid'.

The action takes place on planet Led-Zepp IV (groan), and you have to gain more energy through reGenesis (howl), which you do by sitting down. This, is how all ageing '60s rock fans renew their energy.

The turgid bumph which comes with the game urges you to preserve your spatial awareness and apologises for the lack of a Genesis soundtrack. Well I didn't need one to cure my insomnia — I just put on the game, then I demonstrated my idea of spatial awareness on the cassette. I lobbed it in the bin. Llamasoft fans will love it!



Confuzion
Commodore 64
Incentive
Price £7.95/cass

Presentation: ■■■
Skill level: ■■■
Interest: ■■■
Value for money: ■■■

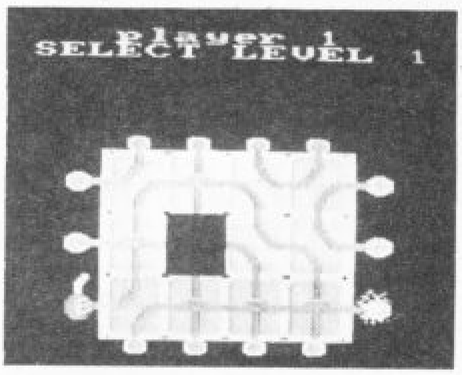
At last, the game of the advertising stunts we've been suffering lately

Confuzion is similar to a fairly unsuccessful arcade game called Locomotive — in which you had to move sections of track around the screen to create a continuous route for the train.

The train has been replaced by a spark and the objective of the game is to get the spark to collide with a bomb on the outside edge of the play area.

If you explode one bomb you are then given two bombs. The sections of track are now smaller and more difficult to manoeuvre. There is also a water sprinkler at work in the play area that you must avoid. It's difficult enough to detonate the bombs in the first few screens — but — there are 64 more to get through.

There is nothing particularly new or innovative about Confuzion. It is hellishly addictive.



Ciphoid 9
Commodore 64
GB Standard
Price £9.95/cass £14.95/disk

Presentation: ■■■■
Skill level: ■■■
Interest: ■■■
Value for money: ■■■

This is a lunar shoot 'em up which appears at first play to be a lot better than it really is. Stop the hordes of alien ships that zoom in on your position with a barrage of shells. Fail, and you get to watch earth being blasted into oblivion.

You have fifty shields for protection and you must destroy a mother ship to renew them and progress to another sector.

When I saw it at the LET show it looked excellent, with screens of major earth cities like London and Paris. The cassette version does not include these, you have to buy the disk to get those, or the follow-up cassette (Ciphoid 9 Earth Attack) which is a shame because the 3D graphics are very good indeed, with a nice sense of perspective and general definition. It is this quality that saves the game from being simply average and turns it into something just about worth playing, especially for disk owners.



SCREEN SCENE

Gremlins
Commodore 64
Adventure International
Price £9.95

Presentation: ■■■
Skill level: ■■■
Interest: ■■■
Value for money: ■■■

Gremlins, the adventure game is now on sale — hot from the keyboard of Brian Howarth — Adventure International's best known UK programmer.

The game follows the plot of the film closely. Too closely in the view of our office adventure expert.

The aim of the game is to help the friendly Gremlin — Gizmo, to defeat the evil Gremlins lead by the evilest one of all — Stripe.

You play the part of Billy who has been tricked by the Gremlins into feeding them after midnight. This caused them to multiply and they are now causing havoc all over the small town of Kingston Falls.

Gremlins has no music or sound effects but it is faultlessly logical. No silly red herrings or doubtful solutions. Another nice touch is the direction indicator which tells you what direction to travel in. Beginners only, seasoned adventurers will sail through.



Fantasy Five
Commodore 64
Commodore
Price £9.99/cass
£9.99/disk

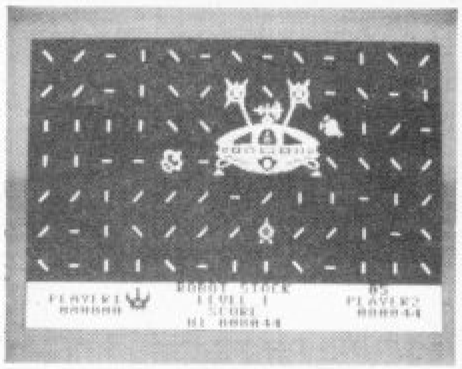
Presentation: ■■
Skill level: ■■■
Interest: ■■■
Value for money: ■■■

Fantasy Five is simply five games packaged together. For your money you get *Buffalo Roundup* in which you chase a buffalo herd and try to get them into a coral before they nip out a gap in the screen and wander around your living room. *Save me Brave Knight* pits you against a castle gate, monsters and witches, all of whom are trying to stop you saving some dame in distress. Irritating.

The best of the lot is *Photon Reflection* in which you have to destroy an alien mother-ship situated in a grid of reflectors.

Spatial Billiards is a sort of 3D *Pottit* and is about as much fun as watching Steve Davis.

Finally, *Dancing Monster* you have to transform a monster back into a princess, while it dances around. It looks like the Elephant Man doing the Hokey Cokey after several pints and is, unsurprisingly, pure drivel. In short, Fantasy Five is pretty poor.



Ace
Commodore 16
Cascade
Price £9.75/cart

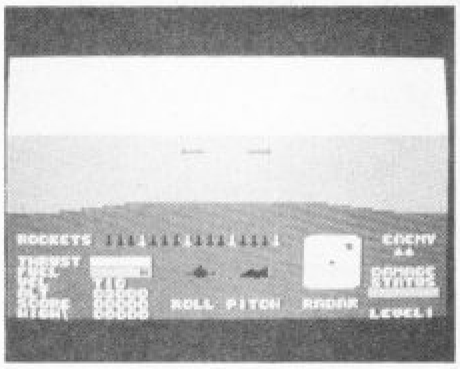
Presentation: ■■■
Skill level: ■■■■
Interest: ■■■
Value for money: ■■■■

Ace is what Cascade call an 'air combat emulator'. No trivial preliminaries like take off, Ace pilots begin their mission in mid-flight.

Track down and destroy enemy fighters. With the aid of your long-range radar. Once visual contact is established you must pursue your adversary before dispatching him to an early grave with either heat-seeking or conventional missiles. He will, of course, fire back, which makes life considerably more difficult, as does the danger of running out of fuel or crashing into the ground.

Careful observation of the instruments together with economic flying and use of ammo is therefore essential.

The action is extremely fast and difficult to master even in daylight (other options are dusk and night flights) so it's unlikely you'll earn your wings overnight and become bored with it.



Berks
Commodore 16/64/Vic-20
CRL
Price £6.95

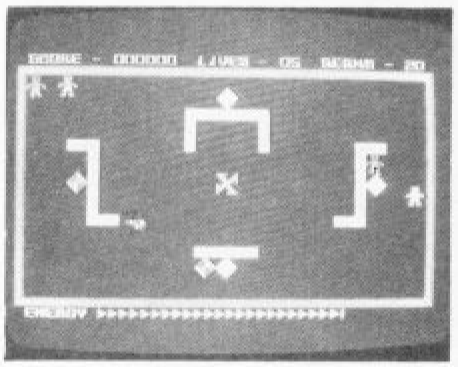
Presentation: ■■■
Skill level: ■■■
Interest: ■■■
Value for money: ■■■

The general trend in standards of C16 software seems to be on the up and Berks, I'm happy to report, is no exception.

The Berks — robots to you and me — are infesting your monitor screen. Destroy them using your 'terror tank'. Here you have one big advantage, Berks can't fire back, or perhaps they're just too stupid.

The Berks are protected by their faithful drones which follow you around the screen in an effort to entrap you. One touch and you're dead. If things get tricky you can stun the drones by firing at them but, alas, they are immortal so only a temporary respite is gained. If you manage to destroy all the Berks before running out of energy or losing all five lives you get to have a bash at the next screen which is slightly more difficult.

If you're after arcade action you could do a lot worse than Berks.



Jack Attack
Commodore 16
Commodore
Price £14.99/cart

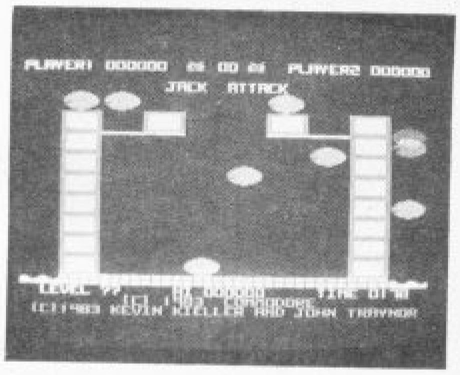
Presentation: ■■■■
Skill level: ■■■
Interest: ■■■
Value for money: ■■

You control Jack — a cute looking blob with feet and antennae. Smiling balloons descend from above and, bounce around generally making a nuisance of themselves.

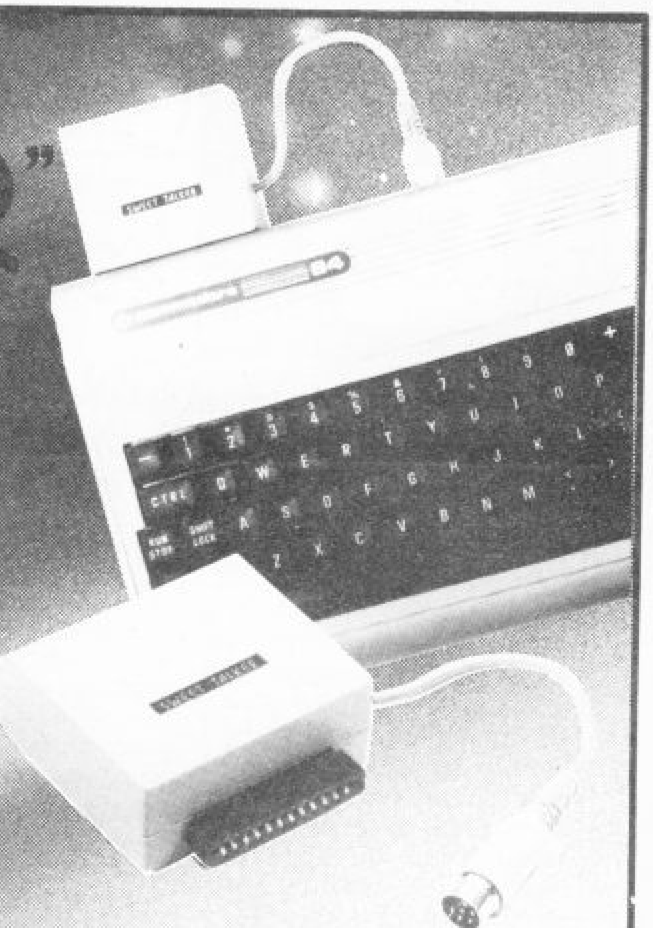
There are a couple of ways they can be disposed of. The straightforward method is simply to jump on them. Failing this Jack can pull and push the large blocks conveniently lying around the place to crush them. Push the wrong block and you could end up under a pile of them yourself.

To keep an eye out for the smiling balloons which have an annoying habit of jumping on you when you're not looking. The object is, of course, to destroy everything that moves in order to progress to the next screen.

Certainly an addictive, high quality game, rather like mayhem on a trampoline with a few breezeblocks chucked in for good measure.



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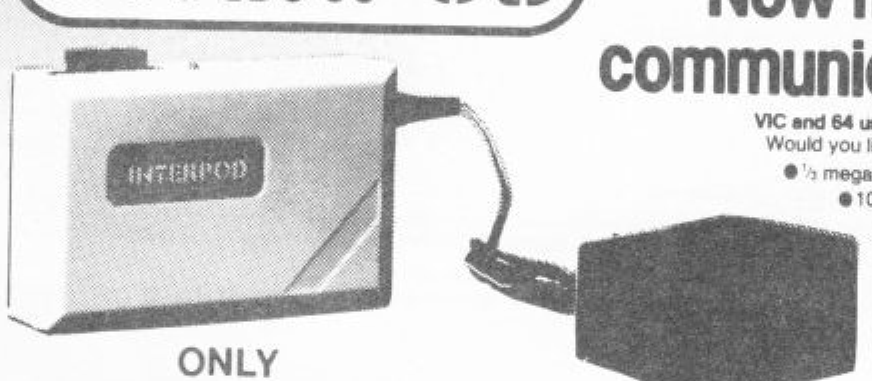
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BUSINESS

ACCOUNTING FOR MICRO SIMPLEX

Micro Simplex established a name for itself by producing accounting software for the Commodore 8000 series. But it saw the Commodore 64's potential early and adapted its products to suit this humbler yet cheaper machine. Now, Micro Simplex accounts software has achieved considerable status on the 64 but, at £150, it's not cheap. Karl Dallas takes a timely look at its facilities.

The combination of a computer, with its associated jargon, and the complexities of accounting, can be a lethal one: it' bad enough having to come to grips with one or the other, but if you're having to learn about computers as well as accounting (or vice versa), the result can be total mystification. Which is a pity, because, really, they're both quite easy to understand.

Or, at least, that's my verdict after having tried running Micro Simplex's extremely well-documented and easy-to-operate total accountancy package. In fact, I'm sure my accountant's going to wish I'd discovered them both years ago.

As regular readers of this column will have gathered by now, I am a total mathematical idiot, and the reason I got into computers in the first palce was because I hoped that they'd help me to make sense of my quarterly VAT returns and my annual income tax assessment. And that's probably why any businessman turns to computerised accounts. Well, so far they've let me down on that score, but it looks as if I can now see the light at the end of the tunnel — thanks to my Commodore and Micro-Simplex.

Opening the box

Micro-Simplex comes on a single disk with a handsome, leatherette-bound 15-chapter manual entitled "Small Business Accounts and VAT Made Simple" and it lives up to its title. It can be configured for either a single-disk, two single disk machines daisy-chained together (you'd need to change the device number of the second machine to 9, but anyone with two disk drives will know how to do that) or a 4040 dual-disk drive.

First, the program has to be configured for your system by running a program called "64-CONFIG" with the write-protect tab removed from your program disk — it always terrifies me, when I have to do that! However, like all Micro-Simplex programs, this is totally menu-driven, so its's dead easy to do.

Besides configuring the program for the appropriate drive set-up, this also formats ("news") a data disk and requires you to enter the company details: name, address (a maximum of four lines), telephone number, VAT number (if any), at the end of which the screen prompt asks:

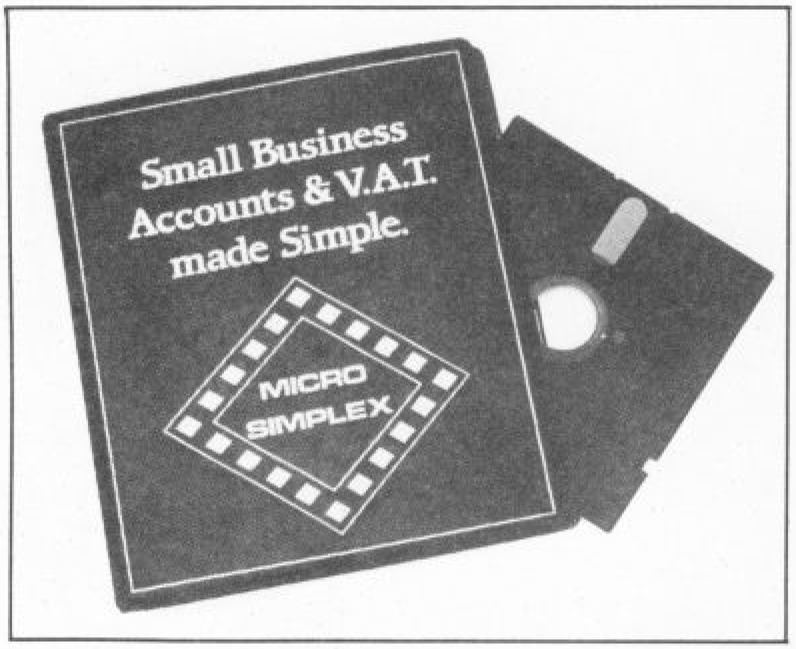
IS THIS ALL OK (Y/N)

This is the procedure every time data is entered.

Once the company details have been entered they are more or less fixed, because of the fairly tight security procedure which prevents the use of pirated copies and, essentially, also any second-hand sale of the program. You have just one week to send in a registration card and ring up for a special security code to type in from the computer. Without it, you cannot enter more than a single week's data entries. Presumably, if you change your company name, you would need to get a new security code.

Part of this set-up procedure includes stating which VAT quarter you are starting with, the week of that quarter, the date of the Sunday of the start-up week, expressed in DDMMYY format — i.e. April 1 1984 would be typed in as 010484 — the balance at the bank and the balance of cash in hand.

Then you remove the disk, replace the write-protect, turn everything off and on again, and you're ready to go.

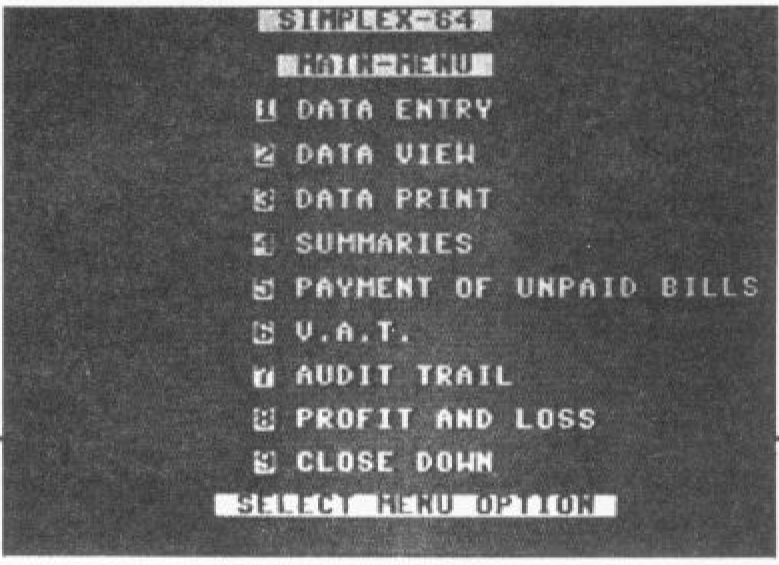


Load and run

The main program can be LOADed with the usual LOAD"*", 8 command and it then RUNs automatically. After the title page, the first thing the program does is to re-display the bank and cash account totals, the week number, starting date, and VAT quarter, giving you the opportunity to change anything. This happens every time you start up. You then get the program's main menu (figure 1), to which you can usually return by pressing a simple two-key combination.

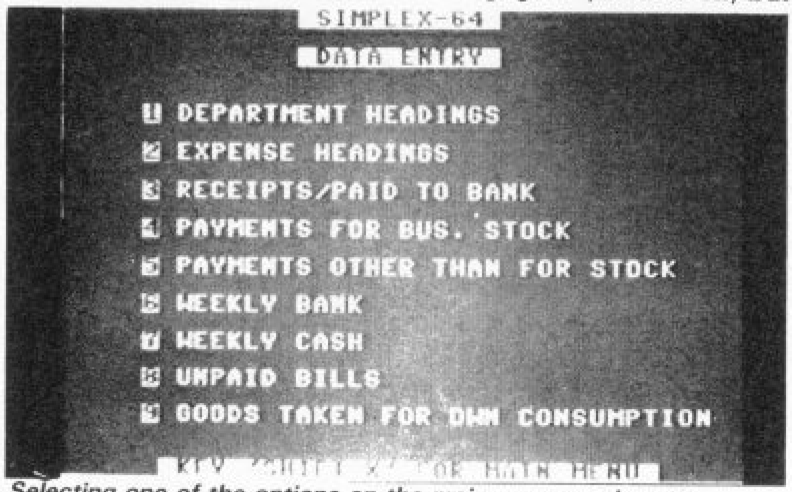
It is very important always to close down the system using its own commands — and not just by turning off the computer — because your data files will probably become corrupted if you don't do it the recommended way. The program is rather unforgiving about this sort of thing, and since plugs can get pulled out of sockets accidentally in the best-regulated of businesses, it recommends frequent backing up of disks. Indeed, when you do close down the system, the last screen message is a reminder to do this.

Micro-Simplex is a menu-driven program — displayed below are the main menu options.



Menu options

Each menu option produces a sub-menu. For instance, option 1 produces the secondary menu you'll see in figure 2.



Selecting one of the options on the main menu produces a secondary menu.

That gives you some idea of the comprehensive way the program handles your accounts. For instance, few accounts programs in my experience seem to understand that most people don't pay their bills immediately they are received. Even if your cash flow is good enough that you don't have to worry about finding the money to pay them — and who is that lucky, these days? — most efficient companies tend to have a specific part of the month to attend to this unpleasant business.

Also, the fact that you can reclaim the VAT on bills as soon as they are received — which may be helpful to your cashflow if they arrived early in the VAT quarter, as long as you remember not to claim it back when they are actually paid — means that you have to keep a careful check on what's been paid and what is waiting to be paid.

Micro-Simplex does this: just a single example of who well thought-out it is.

Is it for you?

One thing that you've got to realise is that this is a program intended, in its present form, for retailers, or anyone else who does a largely cash business on the sales side. It is flexible enough to handle the various VAT schemes available for different kinds of retail business, but it lumps all the day's takings in any of ten departments into a single total.

This is fine for a retailer, whose cash till probably merely sorts out cash taken into "sweets", "tobacco", "newspapers", and so on, but if yours is an invoice-based business, in which you provide goods or services against an invoice, which is paid at a later date, and for which you want to keep a record of those invoices and whether they've been paid, this particular version of Micro-Simplex is not for you.

If you have no more than ten customers, of course, and you only conduct one kind of business, you could allocate each of the ten departments to a different customer, which would help you to keep track of them.

The good news is that a new version of Micro-Simplex for the non-cash business is on the way, though it wasn't ready for review at presstime. This will generate invoices, statements and so on and keep a record of them. Initially, it will be available as a supplementary program disk which will have to be used on its own, but it is planned to include it in the total package at a later date.

Conclusions

Micro-Simplex is a very comprehensive program, but it is also very comprehensible to those who don't understand too much about either accountancy or computers. It is sufficiently good to have earned the approval of the hard-nosed boys of HM Customs and Excise, and they don't please easily.

The manual is very clearly written, though it's a pity it has no index. In one or two minor places the screen display described in the manual differs from what the screen actually shows, but the differences are slight.

Many businessmen (journalists) for example tend to save up accounts as something to do at the weekend or at the end of a long day working at the real purpose of the business, which is selling widgets or gidgets or whatever, not book-keeping. It's important to make sure you are able to keep your wits about you and not make mistakes in what you type in, because while it frequently checks with you to make sure what you've typed is what you actually meant, once you've answered that "Y/N" question with a "Y", it can be rather unforgiving if you've made a mistake.

There is a valuable "hot-line" facility (dial 0625-615375 and ask for Dave Wood) to answer any queries you may have, and for the sum of £25 plus VAT, there's a users' club which assures you of free copies of any updates that may be produced.

Having seen and reviewed business packages for most of the popular machines, I have no hesitation in saying that Micro-Simplex is probably the best, especially for tyro's like me. And that's something I don't get to say very often.

Micro-Simplex for the Commodore 64
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BUSINESS NEWS

PFS FOR COMMODORE

P and P Micro Distributors has announced that it is to sell the Commodore 64 implementation of the PFS range of business software from American Software Publishing Company. It's already selling IBM PC and Apple versions of the same series.

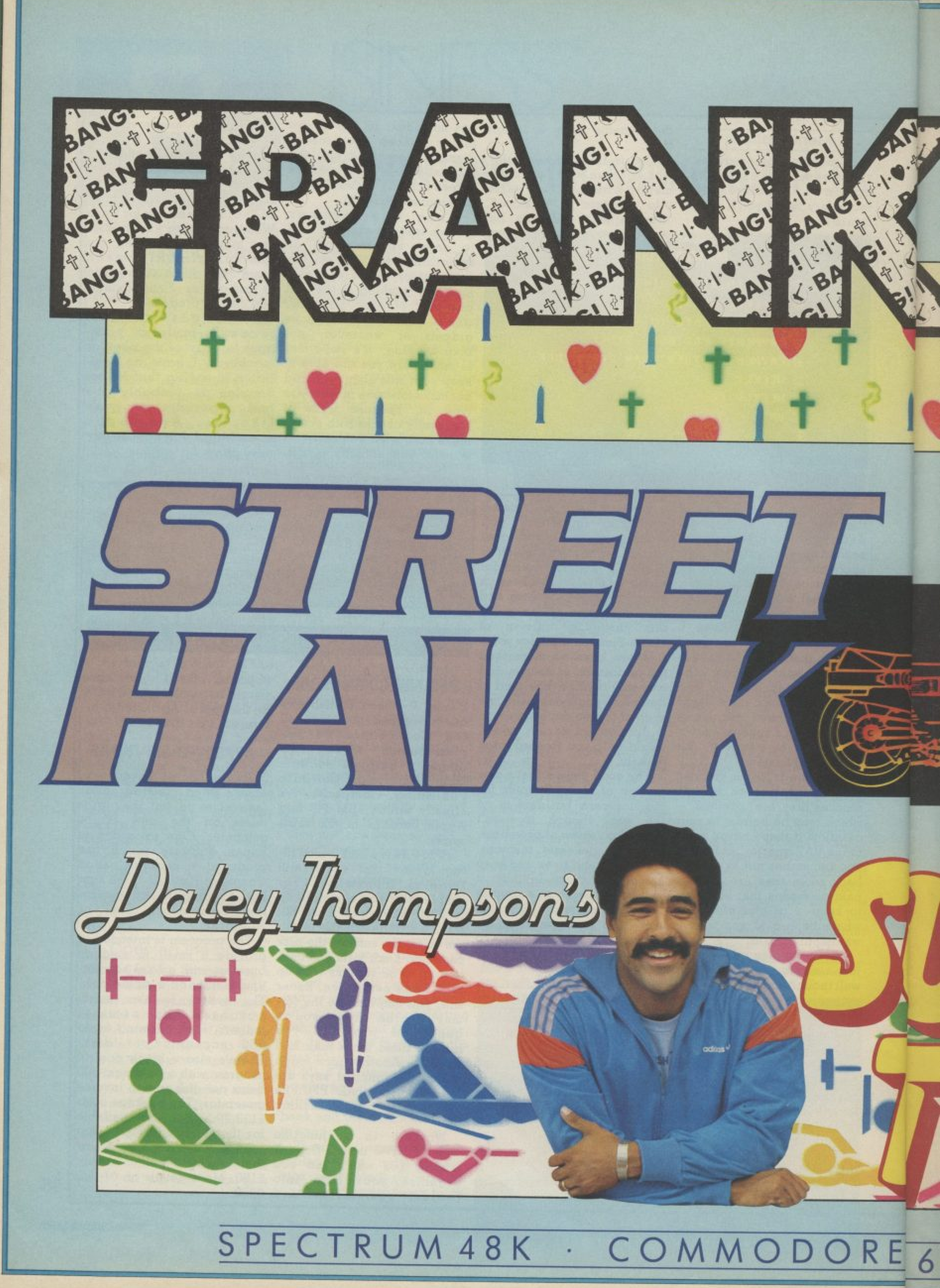
PFS: File is a disk-based filing system that stores and retrieves information. For simple jobs, you can store up to 1000 forms per disk. But there's a trade-off; the larger the form, the smaller the disk capacity. Each form can contain up to 32 screens with up to 50 items per screen. Better still, you can change the format of the form you've generated provided you haven't filled more than half the disk. Another nice touch is that the function keys are fully implemented. PFS:File also lets you print mailing lists.

Working in conjunction with PFS:File is *PFS:Report*, costing £64 which lets you organise your data into tables, summaries and reports. Both packages should be available in the UK by the end of April. More information on 07060 217744.

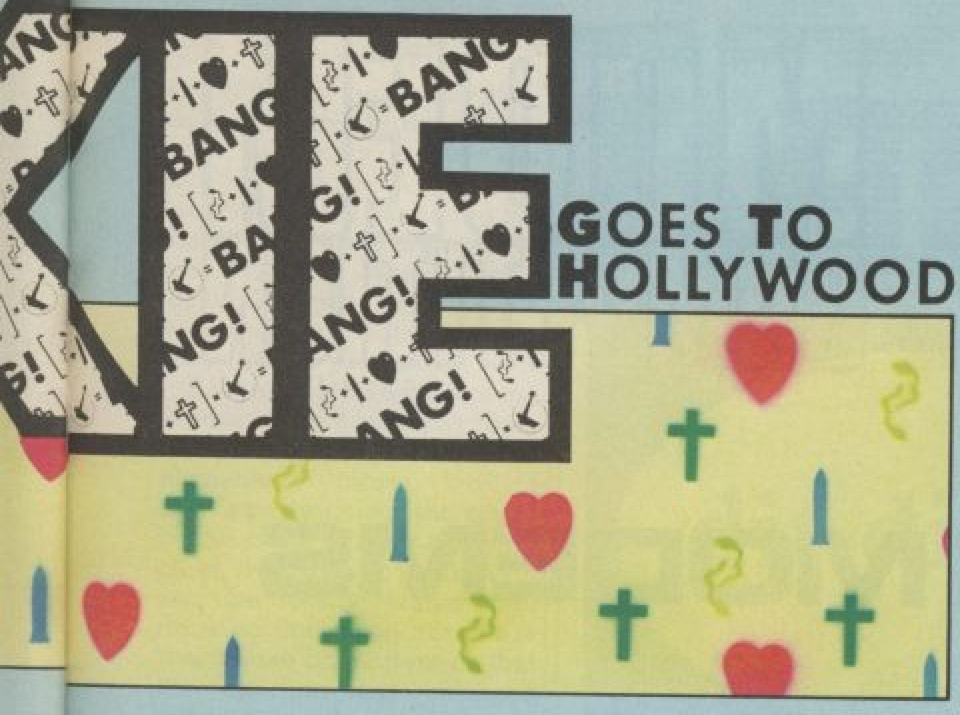
APPROVED SOFTWARE

Software houses haven't exactly been falling over themselves to put their products on the new Plus/4 computer. One exception is Impex Software which has produced a package called *Company Pac 1-2-3*, the first Plus/4 program to receive the Commodore Seal of Approval.

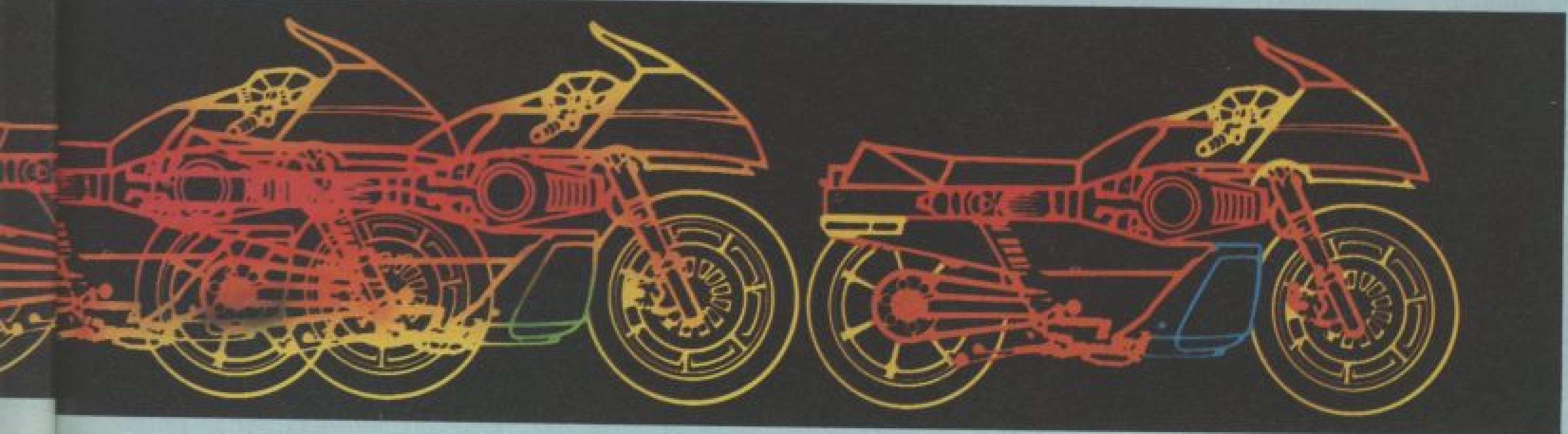
The program is intended to provide a small to medium business with a total accounting facility on a single disk. The system features sales, purchase and nominal ledgers, each allowing up to 550 accounts per disk. There's also a stock control program with a maximum 500 items per disk and an invoice generator. The package costs £113.79 and is also available for the Commodore 64. That sounds rather expensive now that the Plus/4 itself costs only £150. More details on 01-900 0999.



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Complete the entry form using your skill and judgement, and send it off in the next post.

RULES OF THE BRITISH TELECOM MODEM COMPETITION

1) The dial-in is available from 6pm Monday 22nd April to midnight Sunday 5th May 1985, when the competition closes.
2) Entries must be postmarked the next working day after the questions and tiebreaker were obtained.
3) Entries can only be made on the official entry forms and become the property of British Telecommunications plc.
4) The competition is open only to residents of the United Kingdom over the age of 18 years. Employees of the Network Marketing Unit of British Telecommunications plc and PARKER REDMILE LTD. and their dependants are excluded. Only one winning entry per household.
5) Entries not reaching the competition address before midnight on Thursday 9th May 1985 will not be considered.
6) A list of winners will be provided at the competition address. Please send an SAE if you wish to receive it.
7) The winners will be picked as follows from entries received on time and properly completed –
The entries for each type of prize pack with all correct answers to the 5 questions and with the tiebreaker sentences judged most apt and humorous by the competition organisers will be chosen, subject to the stock of appropriate prize packs.
8) The decision of the competition organisers is final and no correspondence will be entered into. Winners will be notified automatically.
9) British Telecommunications plc offers winners requesting BT 'phone socket conversion on entry forms to waive the charge normally made for such work.
10) Details of how to get on Prestel/Micronet 800/Telecom Gold will be sent to winners. Subscriptions not included in prize.

OFFICIAL ENTRY FORM

A. Your answers:
Q1 ....
Q2 ....
Q3 ....
Q4 ....
Q5 ....

B. Tiebreaker Sentence complete (25 words or less in total):
" ....
....
.... "

C. If I win, I would like the prize pack for the
☐ SPECTRUM/SPECTRUM +
☐ BBC MODEL B (Tick Choice)
☐ COMMODORE 64

D. My home telephone line (* Delete as appropriate)
(a) already has a square-type BT 'phone socket * or
(b) would need converting to square-type BT 'phone socket *
If (b), the person renting the line from British Telecom must fill in this declaration – If this is a winning entry, I agree to ask British Telecom to convert my line to square-type BT 'phone socket at a convenient date before 1st July 1985. My line is on Residential rental, is not a coinbox and is not shared service.
I understand British Telecom will not charge for doing the work.

Name .... (Block Capitals)
Telephone number ....
Signature ....
Date 1985

CU

E. I have read the rules of the British Telecom Modem competition and agree to abide by them. I am over 18 years old.

Signature of entrant ....
Date 1985
Name .... (Block Capitals)
Address ....
....
.... Postcode ....

POST IMMEDIATELY TO:–
British Telecom Modem Competition
PO BOX 73
MITCHAM
SURREY
CR4 2XU

(Postage stamp required)

WINNERS WILL BE NOTIFIED AUTOMATICALLY

British Telecommunications plc. Registered Office 81 Newgate Street LONDON EC1A 7AJ. Registered in England no. 1800000

MICRO-WAVE RADIO



Part 3 — transmitting morse code

by Jim Grubbs

Did you get to grips with last month's morse code receive program? If it's inspired you to become a licenced radio operator, you'll enjoy this month's companion keyboard. With it, you'll be able to send morse at up to 50 words per minute just as easily as you type a letter. There's a simple interface to build — too complicated? We tell you where to buy one.

Are you having some difficulty in making morse signals print correctly using last month's program? Chances are that you are expecting too much from the simple interface circuit. Here's some ideas that will optimize the performance of both the interface and the program.

Because of the nature of the program it is constantly looking not only for the individual elements of morse, but it's also 'auto-tracking' the speed of the code. Under anything other than ideal conditions it can be easily fooled into thinking that noise bursts are real morse characters or that the operator has changed sending speeds.

If you're not sure whether the program is working correctly try connecting a key directly to pins A and C on the user port. If you can send morse to the program using this direct method, then all is well. Secondly, with the interface connected to your receiver tune to a strong, interference free signal. Using a volt-ohm meter check the output of the interface. If the meter swings between about zero and three volts or more in step with the sending station your interface is working properly.

It is very important to keep the audio level from the receiver to the minimum required for dependable operation of the interface, and to maximize the amount of audio versus the noise level. Significant improvements can be made by careful adjustment of not only the audio level but also the RF gain control if you have one (not all receivers do.)

Certainly commercial interfaces and programs exceed the abilities of our simple set-up, but even with a quite expensive interface, I find that critical adjustment of the audio and RF gain levels is necessary to achieve maximum performance.

The Morse keyboard

But let's get on with this month's project. When designing a morse keyboard it is important to keep in mind that the goal is to create machine-precision code characters. The signal coming from the keyer should contain perfectly formed and spaced morse characters. In principle, this should be a simple task even using Basic. In reality, it's very difficult to maintain the desired precision over a wide range of transmitting speeds.

As an example, one of the key relationships is that each dah or dash should be exactly three times the length of a dit or dot. The method used in all morse keyboards is to read the computer keyboard using a GET command, look up the value of the character received in a table and then go to the actual sending routine to form the character based on the information from the table.

Writing the transmit program

The relationships between the individual elements of each character and word are determined in Basic by using FOR/NEXT loops. So, if a dash is to be three times as long as a dot, the loop should be written as a multiple of three. That is if a dot used a **FOR X=1 TO 100** loop a dash would use **FOR X=1 TO 300** loop.

It's a nice theory and at relatively slow speeds it comes pretty close. But there are several things about your micro and the nature of Basic that throw a wrench into your good intentions.

FOR/NEXT loops are not entirely linear. If executing a particular loop takes one second to do 1000 times, it does not necessarily hold that it will take two seconds to do the same loop 2000 times.

The other problem is inherent in the nature of Basic itself. If down around program line 200 let's say you call a subroutine at line 250. You might think that the program can jump quickly to the routine since it is almost adjacent to the point where it was called. This is not the case. What actually happens is that the program jumps back to the very beginning and looks all the way down the code searching for the instructions in line 250. Pretty tedious, eh? For some applications Basic is slow anyway and this just adds to the delay.

How the program works

With these considerations in mind, our program has been designed to minimize the effects of such problems. Note that the portion of the program that actually sends the code begins in **line 4**. This is very compact. Using low numbered lines also helps to keep the speed high and the accuracy good.

The principles used are based on an original program by Rick Myers, WB5AYD. Rick emphasizes that nothing extra should be placed between lines 4 and 26. Each addition would degrade the performance of the program.

The rest of the program below **line 100** is for set-up. An array is created (M$) and then filled with the morse equivalent of all standard characters. Take a look at the first set of data statements. If you are familiar with morse you will note that the table begins with a series of eight 'dits'. This is the standard error signal. The program defaults to this value if you try and send a strange character.

Next appear the special characters: **AR** for end of transmission, **BK** for break, **KN** for private transmissions and so on. The numerals and then letters follow. The table is indexed by computing the ASCII value of the typed character.

Our program also allows several unique features that are particularly helpful during contest operations. By assigning special strings to the function keys, pre-programmed messages can be sent. These are contained just ahead of the data statements in the transmit part of the program.

Sending messages

As presented, pressing the **F1** key sends "CQ TEST CQ TEST CQ TEST DE G3XYZ G3XYZ K." The **F3** and **F5** keys send other messages. You can change these, of course, to suit your own needs. The program has been designed so if you try and send an **F2**, **F4** or **F6** message it will substitute the message stored in **F1**, **F3** or **F5** respectively. If additional messages are desired you can modify **line 52** for the 64 or **line 48** for the Vic-20 and add additional messages.

Pressing they **F7** key causes something special to happen. Often in contest operating situations you are required to send along a sequential serial number. Our program will take care of that for you. Each time you press the **F7** key the serial number is incremented by one and your contest message is sent. Should you find that you need to send the message again without changing the number, a press of the **F8** key (shifted F7) will repeat the process for you automatically.

All kinds of features can be added to this simple program but keep in mind that they are likely to degrade the overall quality of the sending.

If you are a speedy typist, you must be careful not to overrun the keyboard buffer. In the Vic and 64 you normally have a ten character limit. If you exceed this number, characters are lost.

Enhance your program

You could create routines to create and store the pre-programmed messages on to tape or disk. That way you won't have to change the program listing whenever you wish to change programmed messages. There is only so much that can be fitted into an unexpanded Vic. Simply combining both a receive and transmit program into such a machine is a challenge but our program does exactly that.

If you are new to radio and can use some code practice, you could substitute a routine in **line 12** to randomly generate an index into the morse code table. Give it a try and see what you can create. Can you figure out how to make the program send letters only?

The transmit interface

All of last month's discussion about data direction registers applies to sending as well as receiving through the user port. The DDR is of course set to go the opposite direction.

The transmit output appears on **pin K** on the user port. A very simple interface (see diagram) is required to key your transmitter. If you wish only to practice or send to someone in the same room, the tones will come from the television or your monitor in normal fashion.

I've tried to make it easy to integrate the transmit program with the receive portion. **Figure one** is the listing for the combined 64 version while **figure two** is for the Vic-20. To switch back and

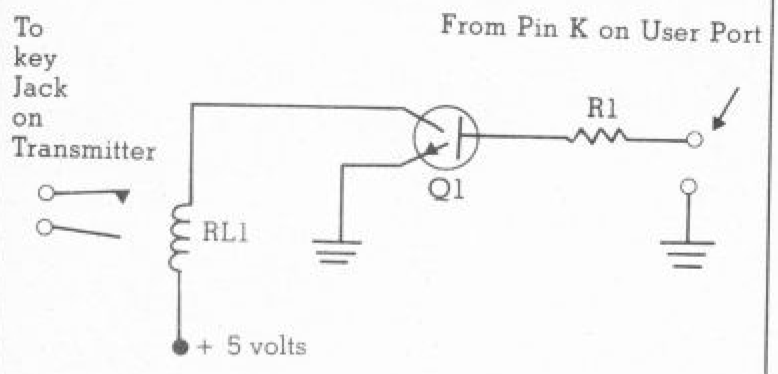
```
2 SN=1:GOTO28
4 FORL=1TOLEN(M$(A)):S$=MID$(M$(A),L,1):M=T:IFS$="-"THENM=DL
6 POKEV,P:POKEW,K:FORD=1TOM:NEXT:POKEV,Z:POKEW,U:FORD=1TOES:NEXT:NEXT
8 FORD=1TOT+T:NEXT
10 IFB$<>""THEN 20
12 GETK$:IFK$=""THEN12
14 IFK$=CHR$(00)THENB$="":GOTO32
16 IF K$=CHR$(210) THEN B$="":GOTO190
18 B$=K$:PRINT B$;
20 A=ASC(B$):B$=RIGHT$(B$,LEN(B$)-1):IFA>LLTHEN52
22 IFA=SPTHENFORD=1TOWS:NEXT:GOTO10
24 A=A-FF:IFA<1THEN A=1
26 GOTO4
28 DIMM$(51):FORL=1TO51:READM$(L):NEXT:S1=20:GOSUB 100
30 POKE 53280,1:POKE 53281,1:PRINT"[BLK]"
32 PRINT"[CLS][3CD]SPEED (5 TO 50)[2CR]"S1"[5CL]";
34 INPUTS1:IFS1<5ORS1>50THEN32
36 PRINT"[CLS]":POKE54296,15:V=54276:P=17:Z=0:W=56577:K=64:U=0
38 T=1200/S1*1.25
40 POKE W,U:DR=56579:D1=64
42 POKE 54273,40:POKE 54277,0:POKE54278,128:POKE V,0
44 ES=3600/S1/2:FF=39:LL=90:SP=32:WS=3*T:DL=3*T:IFS1>30THENDL=4*T
46 I=1:OO=95
48 POKE DR,D1
50 PRINT"[CLS][12SPC][REV] RADIO POST TX: [OFF]":PRINT:GOTO12
52 IFA>132ANDA<141THENA=A-132:ON A GOTO 54,56,58,60,54,56,58,62
54 K$=" CQ TEST CQ TEST CQ TEST DE G3XYZ G3XYZ G3XYZ K ":GOTO18
56 K$=" QRZ QRZ? DE G3XYZ G3XYZ K ":GOTO18
58 K$=" QSL GL DE G3XYZ K ":GOTO18
60 K$=" NR"+STR$(SN)+" 599 G3XYZ BK ":SN=SN+1:GOTO18
62 K$=" NR"+STR$(SN-1)+" 599 G3XYZ BK ":GOTO18
64 DATA [illegible]
66 DATA [illegible]
68 DATA [illegible]
70 DATA [illegible]
72 DATA [illegible]
100 REM RADIO POST MORSE FOR C-64
130 DATA E,T,I,A,N,M,S,U,R,W,D,K,G,O,H,V,F,[illegible]
140 DATA L,-,P,J,B,X,C,Y,Z,Q,-,-,5,4,[illegible]
150 DATA [illegible],1,6,[illegible],7,[illegible],8
160 DATA -,9,0,[illegible]
170 DATA -,..,[illegible]
180 DIM R$(85):FOR N=1TO84:READ R$(N):NEXT:RETURN
190 UP=56577:X=0:Y=0:Z=0:R=1:DD=56579
200 POKE DD,0
210 PRINT "[CLS][13SPC]RADIO POST RX:":PRINT
220 POKE UP,0
230 UR=PEEK (UP) AND R:IF UR<R THEN250
235 GET K$:IF K$=CHR$(212) THEN GOTO 36
240 GOTO 230
250 S=0
260 UR=PEEK (UP) AND R:S=S+10
270 IF UR=R THEN Z=((5*Z)+(2*S))/6:Y=(2*Y)+1:X=(2*X):GOTO 330
280 IF S<.60*Z THEN 260
290 Y=(2*Y):X=(2*X)+1
300 UR=PEEK (UP) AND R:S=S+10
310 IF UR<R THEN 300
320 Z=(4*Z+S)/5
330 S=0
340 UR=PEEK (UP) AND R:S=S+10
350 IF UR<R THEN 250
360 IF S<.60*Z THEN 340
370 GOSUB 420
380 UR=PEEK (UP) AND R:S=S+10
390 IF UR<R THEN 250
400 IF S<(2*Z) THEN 380
410 PRINT" ";:GOTO 230
420 X=(2*X):P=X+Y:IF P>84 THEN P=84
430 PRINT R$(P);:X=0:Y=0:RETURN
```

Figure 1

```
2 SN=1:GOTO28
4 FORL=1TOLEN(M$(A)):S$=MID$(M$(A),L,1):M=T:IFS$="-"THENM=DL
6 POKEV,P:POKEW,K:FORD=1TOM:NEXT:POKEV,Z:POKEW,U:FORD=1TOES:NEXT:NEXT
8 FORD=1TOT+T:NEXT
10 IFB$<>""THEN 20
12 GETK$:IFK$=""THEN12
14 IFK$=CHR$(00)THENB$="":GOTO30
16 IF K$=CHR$(210) THEN B$="":GOTO190
18 B$=K$:PRINT B$;
20 A=ASC(B$):B$=RIGHT$(B$,LEN(B$)-1):IFA>LLTHEN48
22 IFA=SPTHENFORD=1TOWS:NEXT:GOTO10
24 A=A-FF:IFA<1THEN A=1
26 GOTO4
28 DIMM$(51):FORL=1TO51:READM$(L):NEXT:S1=20:GOSUB 100
30 PRINT"[CLS][3CD]SPEED (5 TO 50)[2CR]"S1"[5CL]";
32 INPUTS1:IFS1<5ORS1>50THEN30
34 PRINT"[CLS]":POKE36878,15:V=36876:P=230:Z=0:W=37136:K=64:U=0
36 T=1200/S1*1.25
38 POKE W,U:DR=37138:D1=64
40 ES=3600/S1/2:FF=39:LL=90:SP=32:WS=3*T:DL=3*T:IFS1>30THENDL=4*T
42 I=1:OO=95
44 POKE DR,D1
46 PRINT"[CLS][3SPC][REV] RADIO POST TX: [OFF]":PRINT:GOTO12
48 IFA>132ANDA<141THENA=A-132:ON A GOTO 50,52,54,56,50,52,54,58
50 K$=" CQ TEST CQ TEST CQ TEST DE G3XYZ G3XYZ G3XYZ K ":GOTO18
52 K$=" QRZ QRZ? DE G3XYZ G3XYZ K ":GOTO18
54 K$=" QSL GL DE G3XYZ K ":GOTO18
56 K$=" NR"+STR$(SN)+" 599 G3XYZ BK ":SN=SN+1:GOTO18
58 K$=" NR"+STR$(SN-1)+" 599 G3XYZ BK ":GOTO18
60 DATA [illegible]
62 DATA [illegible]
64 DATA [illegible]
66 DATA [illegible]
68 DATA [illegible]
100 REM RADIO POST MORSE FOR VIC-20
130 DATA E,T,I,A,N,M,S,U,R,W,D,K,G,O,H,V,F,[illegible]
140 DATA L,-,P,J,B,X,C,Y,Z,Q,-,-,5,4,[illegible]
150 DATA [illegible],1,6,[illegible],7,[illegible],8
160 DATA -,9,0,[illegible]
170 DATA -,..,[illegible]
180 DIM R$(85):FOR N=1TO84:READ R$(N):NEXT:RETURN
190 UP=37136:X=0:Y=0:Z=0:R=1:DD=37139
200 POKE DD,0
210 PRINT "[CLS][4SPC]RADIO POST RX:":PRINT
220 POKE UP,0
230 UR=PEEK (UP) AND R:IF UR<R THEN250
235 GET K$:IF K$=CHR$(212) THEN GOTO 34
240 GOTO 230
250 S=0
260 UR=PEEK (UP) AND R:S=S+10
270 IF UR=R THEN Z=((5*Z)+(2*S))/6:Y=(2*Y)+1:X=(2*X):GOTO 330
280 IF S<.60*Z THEN 260
290 Y=(2*Y):X=(2*X)+1
300 UR=PEEK (UP) AND R:S=S+10
310 IF UR<R THEN 300
320 Z=(4*Z+S)/5
330 S=0
340 UR=PEEK (UP) AND R:S=S+10
350 IF UR<R THEN 250
360 IF S<.60*Z THEN 340
370 GOSUB 420
380 UR=PEEK (UP) AND R:S=S+10
390 IF UR<R THEN 250
400 IF S<(2*Z) THEN 380
410 PRINT" ";:GOTO 230
420 X=(2*X):P=X+Y:IF P>84 THEN P=84
430 PRINT R$(P);:X=0:Y=0:RETURN
```

Figure 2

Morse Transmit Interface



Q1 — Any NPN transistor such as 2N2222
R1 — 1000 ohm resistor
RL1 — 5 volt DC relay with 75 milliamp coil Radio Shack #275-243 or equivalent.

forth between the two modes, use a shifted **R** or **T-R** for receive and **T** for transmit. Hold the shift key down and while doing so push the appropriate key, T or R.

While in transmit mode a press of the "back arrow key" located in the upper left hand corner of the keyboard will return you to the speed prompt so that you can change your operating speed without leaving the program.

When receiving, the switch back to transmit will not occur until there is a break in the receiving. If necessary turn the volume down temporarily to get the program back into the transmit mode.

The transmit speed defaults to 20 words per minute. If that's too high, change the value of **S1** in line 28 to the speed of our choice.

Keep in mind the limitatioins of the receive program. Though you may be able to send 50 words per minute with the keyboard, the receive program still will only be reliable up to about 25 wpm. If you have access to a Basic compiler you may want to use it to speed up the program.

Our program will make you an almost instant star in the sending ranks. It has the sound of a very expensive electronic keyer. It should serve your needs for a long time to come.

On tap for next month is reception of radio teletype signals using your Commodore computer. To do that, we have to teach the computer to speak a language called *Baudot*. It's really not as hard as you might think. We'll also take a quick overview of commercial units available for purchase.

Remember, you can write to me via P.O. Box 3042, Springfield, Illinois 62708 USA or via Commodore User. Please enclose either IRC or U.S. postage if you expect an individual response. You may also wish to listen for my series on computers in the ham shack and listening post currently airing on Radio Sweden International. The reports are part of Sweden Calling DXers during the English broadcasts every other Tuesday. Till next time, cheers from the Grubbs ham-shack.

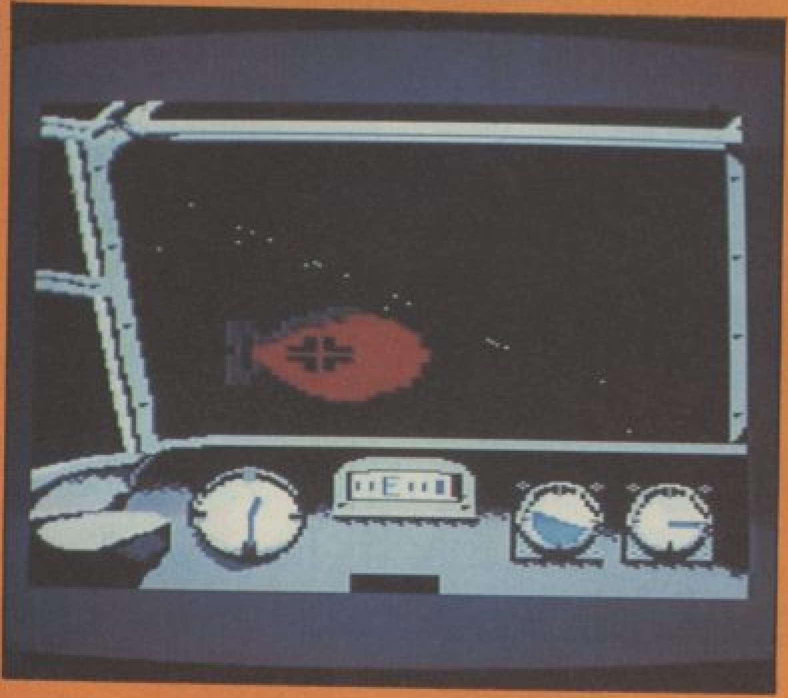
Here's a few more names to add to last month's short list of interface and software suppliers:

- **JEP Electronics** of 4 Housman Walk, Kidderminster has a "Morse Reader" program on cassette for both Vic and 64. It includes a diagram for a simple one transistor interfacing circuit, which inputs the signal through the serial port.
- **Moray Micro Computing** of Enzie Slackhead, Buckie, Moray has the "Didi-Dada" morse tutor for the Commodore 64 which simulates receive and send. It costs £7 on tape and £9 on disk.
- **ICS Electronics Ltd.** P.O. Box 2, Arundel, West Sussex is offering a game called "Doctor DX" that simulates receiving and transmitting morse during a CQ worldwide DX contest. Probably fun but the cartridge is a bit pricey at £96.95.

COMPETITION

This month we're giving you the chance to win the superb new Dambusters game plus realistic Airfix models of the very planes that flew to bust German dams. So scramble with those pens!

BOMBS AWAY!



SUPERHEROES COMPETITION: RESULTS

Thanks to everybody who entered our Go for Gold competition in March. The answers were 1) Stephen Spielberg 2) The Ark of the Covenant 3) Robert E. Howard and 4) This was a nasty trick question, sorry but Arnold Schwarzanegger has actually won Mr Universe five times. That was a bit sneaky we know, but we had so many entries that it helped us find the winners. No trick questions this month, promise!

There were some good ideas among the suggested titles of films that should be converted in to computer games, though shame on those of you who suggested video nasties. After due consideration the five winners are: David Mann of Luton, Brian Blackmore of Canterbury, Richard Watson of Glasgow, Paul Hendry of Bushey Heath and G. Armstrong from Middlesbrough. Congratulations, those U.S. Gold games are on their way. And so are the twenty runners-up prizes.

If you've seen our glowing review of the amazing Dam Busters game then you won't want to miss out on this chance to win one.

Those extremely generous people at U.S. Gold have offered us no less than five free copies of Dam Busters to give away as prizes, plus the Airfix model kits of the Dambusters planes.

All you have to do is tell us which German dams were bombed in the famous raid? Who invented the bouncing bombs used in the raid? And where did the inventor get the idea for the bouncing bomb?

Fill in the form and tell us in not more than thirty words what your favourite flight game is and why. Send it to: Dam Busters Competition, Commodore User, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU — not later than 24th May.

Answer to question 1 ....

Answer to question 2 ....

Answer to question 3 ....

Name ....

Address ....

....

....

My favourite flight game is ....

Because ....

....

....



The Handic SUPERMARKET

YOU can now buy the complete range of "off the shelf" Handic products by post, if you're not near a Handic dealer. All you have to do is make your selection, tick the boxes and send in the coupon with your remittance. We will pay the postage and packing and offer a full 14 day money back guarantee. Handic produce many software and hardware accessories for IBM and compatibles, the Commodore 3000, 4000, 8000 & 700, and of course the Commodore 64.

HANDIC DATABASE

Database, for example, is a brand new, cartridge and disc based software package. Especially designed for both, first time and experienced data base users.

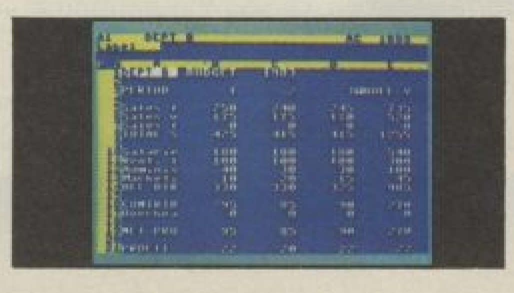
For those of you who need to collate and store information for easy recall, data base can make life easier. The basic package includes a mailing list and 4 different print programs.



CALC RESULT

Calc Result, the financial spreadsheet for the 64, that's ideal for all those domestic headaches, such as loans, mortgages, home budgeting, stock portfolios, tax planning – let alone all those bills! In the office too Calc Result will make calculating, budgeting, simulation, construction so much easier for the business – large or small. This easy to learn package comes in two versions – Calc Result easy (cartridge based) and Advanced (disc and catridge based with pedagogical manual).





TECHNICAL DATA

- **Spread sheet size** 64 X 254 X 32 pages
- **Consolidation:** Easy with the 32 pages available in Calc Result Advanced
- **Printing:** Flexible printing formats out to most popular printers
- **Graph:** Histogram with scroll through feature rows and columns for printing
- **Colour:** Supports full colour down to individual cell level
- **Help:** Easy help screens available, at all levels
- Calc Result is also available in eight European languages

Applied Calc Result describes a larger number of applications in the area of:–

PERSONAL AND BUSINESS FINANCE · STOCKS AND SHARES · STATISTICS · MATHEMATICS ·

The user of Calc Result will find among the applications given many useful examples of how to get the most from Calc Result.



THE Handic supermarket basket is full of 'goodies' for your Commodore 64. Here is a brief description of what they all are! Don't forget – if you need any more information, either clip the coupon (and tick column 'A') or give us a ring.

1 Mon 64
An outstanding Machine Code Monitor (cartridge based)

2 Teledata
Communication cartridge for use with the CBM 64, link up with Databases like the bank or supermarket, over the telephone lines.

3 Superbox 64
An expansion unit for the Commodore, which features three independant cartridge slots; IEEE interface that is totally transparent; has multi-user capabilities with IEEE; and a re-set switch which activates a cold start on the computer. This unit will connect up to 3 cartridges at the same time, which makes frequent altering between programs simple and reduces wear on the cartridge slot.

4 Vic Rel
Vic Rel (Rel 64) is a relay cartridge for the CBM 64 and Vic 20 which has almost limitless applications, such as control of burglar alarms, garage doors, door locks, electric radiators, lamps , transmitters, model railways, etc.etc.

5 Disc-based games
Handic have a set of disc based games for the Commodore 64, all are great fun and superb colour graphics. At around 9.95 each. Why not treat yourself to a few?
Quantity discounts are available on request – dealer enquiries are also welcome.



6 Diary 64
An ideal program for keeping track of telphone numbers, addresses, appointments, schedules, in fact the ideal time manager for all you sieve-heads.

7 Stat 64
The statistical CBM cartridge which ads 19 new commands to your Basic language. An excellent programming aid for all you statisticians.

8 Graf 64
A CBM cartridge that turns solutions of equations into graphical analysis, what you might call a plotter-jotter.

9 Handic Auto Modem
This modem is the expanded version of the Videotex modem (see illustration). When used together with the Handic Teledata Base 64 this unit enables you to set up your own data base with information.



Videotex Split-Speed Modem
This Split-Speed modem is especially designed to connect with computers over the telephone lines, its facilities include auto-dialling, line control, etc. (BT approval applied for).

10 RS232
A standard V.24 (RS232) interface for connecting the CBM 64 to printers and other peripherals.

11 Bridge 64
A cartridge bridge game for the intelligentsia.

12 Forth 64
A Forth generation programming language for people who know what they are talking about, and want to know even more.

Checklist



COMMODORE 64–SOFTWARE		A	B
CALC RESULT ADVANCED	99.00	☐	☐
CALC RESULT EASY	49.95	☐	☐
DIARY 64	19.95	☐	☐
BRIDGE 64	19.95	☐	☐
STAT 64	29.95	☐	☐
REL 64	34.95	☐	☐
MON 64	39.95	☐	☐
GRAF 64	29.95	☐	☐
FORTH 64	34.95	☐	☐
SSP (DISK BASED DIARY)	12.95	☐	☐
DISK BASED GAMES			
SPACE ACTION	9.95	☐	☐
SPACE TRAP	9.95	☐	☐
OISAC	9.95	☐	☐
Q-HOP	9.95	☐	☐
THE SHIP	9.95	☐	☐
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FOURTH SARCOPHAGUS	9.95	☐	☐
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VICTUALS

HOW TO USE EASY ENTER

COLOUR CODES

[BLK]	— press CTRL and 1
[WHT]	— press CTRL and 2
[RED]	— press CTRL and 3
[CYN]	— press CTRL and 4
[PUR]	— press CTRL and 5
[GRN]	— press CTRL and 6
[BLU]	— press CTRL and 7
[YEL]	— press CTRL and 8

[ORG]	— press CBM key and 1
[BRN]	— press CBM key and 2
[L RED]	— press CBM key and 3
[GR1]	— press CBM key and 4
[GR2]	— press CBM key and 5
[L GRN]	— press CBM key and 6
[L BLU]	— press CBM key and 7
[GR3]	— press CBM key and 8

OTHER CODES

[CU]	— press 'cursor up' key
[CD]	— press 'cursor down' key
[CL]	— press 'cursor left' key
[CR]	— press 'cursor right' key
[HOM]	— press HOME key
[CLS]	— press CLEAR key
[DEF]	— press INST key (insert)
[REV]	— press RVS ON key (CTRL and 9)
[OFF]	— press RVS OFF key (CTRL and 0)
[SPC]	— press spacebar
[G<key]	— press CBM key with specified key
[G>key]	— press SHIFT key with specified key

EXAMPLES:

[3SPC]	— press spacebar three times
[5CD]	— press 'cursor down' key five times
[G>F]	— press SHIFT key with 'F'

COMMODORE GRAPHIC CHARACTERS

These listings we generally run out on a letter-quality printer, though, and conventional graphics can't be handled on a daisywheel. So some listings are done on a Commodore printer, in which case you may see the standard control codes:

PRINT WHITE	FUNCTION KEY F2
CURSOR DOWN	FUNCTION KEY F4
REVERSE FIELD ON	FUNCTION KEY F6
HOME	FUNCTION KEY F8
PRINT RED	PRINT BLACK
CURSOR RIGHT	CURSOR UP
PRINT GREEN	REVERSE FIELD OFF
PRINT BLUE	CLEAR
FUNCTION KEY F1	INSERT
FUNCTION KEY F3	PRINT PURPLE
FUNCTION KEY F5	CURSOR LEFT
FUNCTION KEY F7	PRINT YELLOW
	PRINT CYAN

EASY ENTER

PROGRAMS

MINEFIELD — FOR THE UNEXPANDED VIC 20



Negotiate your way through the menacing minefield and rescue the distressed princess (I'll lay odds it's not Di) in this shamefully sexist game from David Gardiner.

There are two programs. The first sets up the user defined graphics; when you have typed this in and run it, press RUN/STOP and RESTORE then type in and run the second program.

The general idea is to guide the little man towards the little woman, grab her, and lead her to safety. If my efforts are anything to go by she'd be better off finding her own way out! The keys to use are W—up, Z—down, A—left and D—right. The tricky bit is that you can't actually see the mines although you do have a detector which indicates how many mines, if any, are in the immediate vicinity. If you are successful the mines are revealed and you get an action replay of your route.

ILLUSTRATION: ANDREW PAINTER

PROGRAM 1

```
100 REM MINEFIELD
110 REM BY D.GARDINER
120 POKE52,28:POKE56,28:CLR:POKE36879,8:POKE36869,255
130 PRINT"[CLS][CD][WHT][REV]DEFINING CHARACTERS:[6CD]"
140 FORT=0TO3:FORTT=0TO15:POKE7746+T*22+TT,T*16+TT:NEXT:NEXT
150 B=0:FORT=1TO512:READA:
160 IFA=-1THEN200
170 IFA<0ORA>255THENPOKE36869,240:PRINT"[CD]BYTE"T"= ["A"] ???":END
180 B=B+A:POKE7167+T,A
190 NEXT
200 IFB<>40502THENPOKE36869,240:PRINT"[GD]?CHARACTER DATA[8SPC]ERROR
    [2CU]":END
530 PRINT"[2CD]NOW LOAD AND RUN"
540 PRINT"[CD]MINEFIELD 2/GOOD LUCK<"
550 CLR:END
560 DATA24,24,0,90,60,24,60,126
570 DATA126,66,66,126,66,66,66,0
580 DATA124,66,66,126,66,66,124,0
590 DATA126,64,64,64,64,64,126,0
600 DATA126,34,34,34,34,34,126,0
610 DATA126,64,64,124,64,64,126,0
620 DATA126,64,64,124,64,64,64,0
630 DATA126,64,64,78,66,66,126,0
640 DATA66,66,66,126,66,66,66,0
650 DATA62,8,8,8,8,8,62,0
660 DATA14,4,4,4,4,4,124,0
670 DATA66,68,72,112,72,68,66,0
680 DATA64,64,64,64,64,64,126,0
690 DATA126,90,90,90,66,66,66,0
700 DATA66,98,82,74,70,66,66,0
710 DATA126,66,66,66,66,66,126,0
720 DATA126,66,66,126,64,64,64,0
730 DATA126,66,66,66,74,70,126,0
740 DATA126,66,66,126,72,68,66,0
750 DATA126,64,64,126,2,2,126,0
760 DATA62,8,8,8,8,8,8,0
770 DATA66,66,66,66,66,66,126,0
780 DATA66,66,66,36,36,24,24,0
790 DATA66,66,66,90,90,90,126,0
800 DATA66,66,36,24,36,66,66,0
810 DATA34,34,34,62,8,8,8,0
820 DATA126,2,4,24,32,64,126,0
830 DATA130,0,40,16,16,40,0,130
840 DATA24,24,0,60,90,24,36,36
850 DATA0,24,24,0,0,24,24,0,129,165,165,165,189,189,189,255,193,247,
    247,247,247,247,193
860 DATA255,0,0,0,0,0,0,0,129,191,191,131,191,191,129,255,36,36,36,
    0,0,0,0
870 DATA0,255,231,231,255,255,231,231,255,255,255,255,255,255,255,255,
    255,189,157
880 DATA173,181,185,189,189,255,0,0,0,0,8,8,16,0,102,102,16,249,102,
    246,159,159, 28,16,16
890 DATA16,16,16,28,0,56,8,8,8,8,8,56,0,129,189,185,165,157,189,129,
    255,231,215, 247,247
900 DATA247,247,247,255,129,253,253,129,191,191,129,255,129,253,253,
    193,253,253, 129,255
910 DATA255,31,240,31,240,31,240,255,0,0,0,0,0,24,24,0,126,66,70,90,
    98,66,126,0, 24,40
920 DATA8,8,8,8,8,0,126,2,2,126,64,64,126,0,126,2,2,62,2,2,126,0,4,
    12,20,36,126, 4,4,0
930 DATA126,64,126,2,2,2,126,0,126,64,64,126,66,66,126,0,126,2,2,4,8,
    16,32,0,126,66,66
940 DATA126,66,66,126,0,126,66,66,126,2,2,126,0,255,255,0,0,0,0,0,0,
    129,191,191, 129,253
950 DATA253,129,255,0,24,24,24,0,24,24,0,0,129,90,36,60,36,90,129,
    0,0,0,0,126,12 6,0,0,30
960 DATA2,2,14,5,0,8,0
```

by David Gardiner

PROGRAM 2

```
100 DIMA%(419),B%(300):U=7724:C=30720:V=36878:POKEV-9,255
110 R=1:S=0
120 PRINT"[CLS][BLU][9CD][6SPC]SETTING UP"
130 Y=28:POKEV,15:W=1:POKEV+1,220:O=0:FORT=1TO417:A%(T)=0:IFRND(TI)<(R/20)THENA%
(T)=1
140 NEXT:PRINT"[CLS][BLK]^_%!;£$*[2SPC][BLU]SCORE]"S:FORT=7702TO7723:POKET,46:PO
KET+440,46
150 POKET+C,6:POKET+440+C,6:NEXT
160 T=INT(RND(1)*200):IFPEEK(T+U)<>32THEN160
170 A%(T)=2:POKET+U,0:POKET+U+C,2:P=408:A%(P)=0:A%(P-22)=0:A%(P-1)=0:A%(P+1)=0
180 A%(10)=0
190 POKEU+P+C,0:POKEU+P,Y:M=0
200 IFA%((P-22)*ABS(P-22>0))=1THENM=M+1
210 IFA%((P-1)*ABS(P-1>0))=1THENM=M+1
220 IFA%((P+1)*ABS(P+1<420))=1THENM=M+1
230 IFA%((P+22)*ABS(P+22<420))=1THENM=M+1
240 POKE7687,M+42:POKE7687+C,M
250 L=0:GETA$:IFA$=""THEN250
260 IFA$="W"THENL=-22
270 IFA$="X"THENL=22
280 IFA$="A"THENL=-1
290 IFA$="D"THENL=1
300 IFL=0THEN250
310 IFP+U+L=7712ANDO=1THEN460
320 IFPEEK(P+U+L)<>32ANDPEEK(P+U+L)<>0THEN250
330 POKEP+U,32:POKEV-4,230:P=P+L:POKEP+U,Y:B%(W)=L:POKEV-4,0:IFW<300THENW=W+1
340 IFA%(P)=1GOTO390
350 IFA%(P)=2GOTO370
360 GOTO190
370 FORT=1TO3:FORTT=140TO250STEP4:POKEV-3,TT:NEXT:NEXT:POKEV-3,0:O=1:POKE7712,32
:Y=39
380 A%(P)=0:S=S+200*R:PRINT"[HOM][BLU]"TAB(10)"SCORE]"S:GOTO190
390 POKEP+U+C,2:POKEP+U,27:POKEV,15:FORT=254TO128STEP-1:POKEV+1,218:POKEV-1,T
400 POKEV+1,220:NEXT:POKEV-1,0:PRINT"[CLS][BLU][CD]YOU SCORED]"S:IFS>HTHENH=S
410 PRINT"[CD]HIGH SCORE]"H
420 PRINT"[CD]PLAY AGAIN?"
430 GETA$:IFA$="Y"GOTO110
440 IFA$="N"THENPRINT"[CLS]":POKEV+1,27:POKEV-9,240:END
450 GOTO430
460 POKEV,15:FORT=1TO8:FORTT=255TO128STEP-6:POKEV-2,TT:NEXT:NEXT:POKEV-2,0:S=S+R
*100
470 PRINT"[HOM][8SPC]":POKEP+U,32:FORT=1TO418:IFA%(T)=1THENPOKET+U,61:POKET+U+C,
2
480 NEXT:P=408:FORT=1TOW:PRINT"[HOM][BLU]REPLAY":POKEP+U,28:FORTT=1TO99:NEXT:POK
EP+U,32
490 P=P+B%(T):PRINT"[HOM][7SPC]":FORTT=1TO200:NEXT:NEXT:FORT=1TO999:NEXT
500 IFS>HTHENH=S
510 R=R+1:PRINT"[CLS][BLU][CD]YOUR SCORE]"S:PRINT"[CD]HIGH SCORE]"H:PRINT"[CD]NO
W TRY SCREEN"R
520 GOTO130
```



PROGRAMS

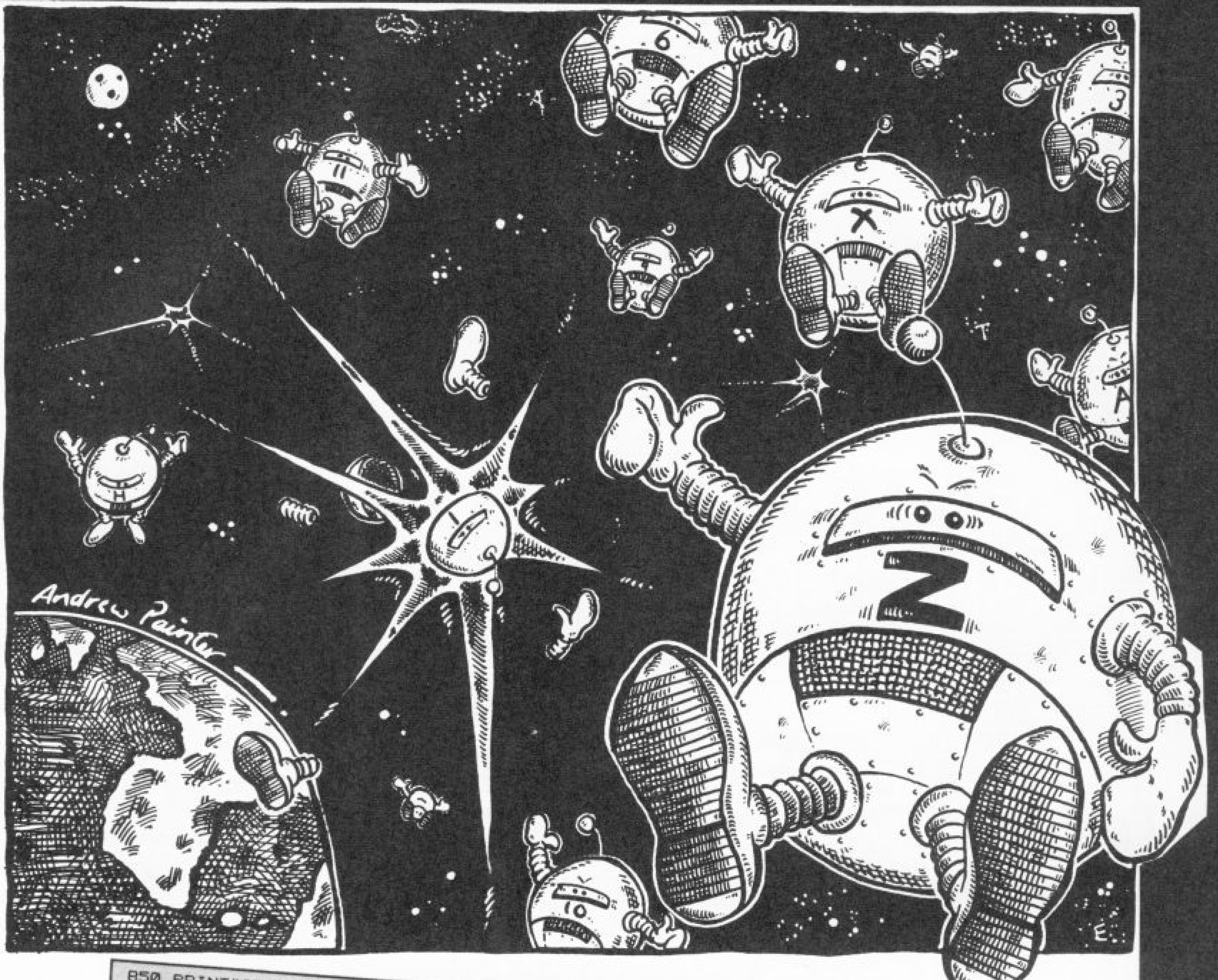
ALPHA ALIENS — FOR THE COMMODORE 64

If you're not very familiar with the Commodore 64's keyboard this game from Neil Phillips should help you get better acquainted. As the letters and numbers drop from the sky you have to stop them by pressing their keyboard equivalents. Failure to hit the right keys results in an earth shattering explosion and the loss of one of your three lives. There are five skill levels so you can take things easy to start with. Who knows, your typing may improve so much that you're able to type in Victuals listings in half the time! By the way, when you see '\', you must press the '£' key. For example, [G>\] means press SHIFT together with the '£' key.

```
                                                 ALPHA ALIENS[4CD][BLU]"
15 Q=RND(-TI):HI=0
20 S=1024:C=54272
50 POKE53280,6:POKE53281,3:PRINT"[CLS][CD][14CR][REV][WHT]ALPHA ALIENS[4CD][BLU]"
60 PRINT"THE EARTH IS UNDER ATTACK FROM ALIEN"
70 PRINT"LETTERS & NUMBERS, AND YOU ARE ITS ONLY HOPE.[2CD]"
80 PRINT"AS THE BOMB FALLS, YOU MUST TYPE THE"
85 PRINT"SAME THING ON THE KEYBOARD.[2SPC]OTHERWISE,"
90 PRINT"IT WILL CRASH INTO THE HOUSES, AND YOU"
100 PRINT"WILL LOSE ONE OF YOUR THREE LIVES.[5CD]"
110 GOSUB20000
112 GOSUB1000
115 L$="ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890+-\_^*@=,./;:"
117 GOSUB800
120 SP=S+INT(RND(.)*40)+1
130 LE$=MID$(L$,INT(49*RND(.)+1),1)
140 IFASC(LE$)>63ANDASC(LE$)<96THENLE=ASC(LE$)-64:GOTO150
145 LE=ASC(LE$)
150 CH=PEEK(SP):CC=PEEK(SP+C):POKESP,LE:POKESP+C,0
160 X=INT(RND(.)*10)+1
170 IFX=1THENNP=SP-1:GOTO200
175 IFX=2THENNP=SP+1:GOTO200
180 IFX=3ORX=4ORX=5THENNP=SP+39:GOTO200
185 IFX=6ORX=7ORX=8THENNP=SP+41:GOTO200
190 IFX=9ORX=10THENNP=SP+40:GOTO200
200 IFNP>S+600THENIFPEEK(NP)<>32THEN500
210 IFNP>S+1000THEN500
230 GETA$:IFA$=LE$THENN=N+1:GOTO117
250 FORZ=1TOP:NEXT
300 POKESP,CH:POKESP+C,CC:SP=NP:GOTO150
500 REM EXPLOSION WITH SOUND & COLOUR!
510 POKE54277,0:POKE54278,136:POKE54273,5:POKE54272,25:POKE54276,129
520 FORT1=0TO15STEP5:FORT2=0TO15:POKE53281,T2:POKE53280,T1:FORZ=1TO60
530 NEXTZ,T2,T1:POKE54276,128
600 M=M-1:IFM<1THEN650
610 POKE53280,0:POKE53281,0:PRINT"[CLS][CD][WHT]YOU HAVE[RED]"M"[WHT]MEN LEFT.[2
CD]"
612 IFM=1THENPRINT"[HOM][CD]"TAB(11)"MAN[2CD]"
620 PRINT"[YEL]SCORE: [RED]"N*10
630 PRINT"[3CD][15CR][REV][GRN]GET READY!"
640 POKE54277,0:POKE54278,136:POKE54276,17:FORT=1TO10:POKE54273,38
642 POKE54272,126:FORZ=1TO130:NEXT:POKE54273,24:POKE54272,63
645 FORZ=1TO139:NEXTZ,T:POKE54276,16:POKE198,0:GOTO117
650 POKE53280,0:POKE53281,0:PRINT"[CLS][CD][BLU]YOU HAVE LOST ALL OF YOUR MEN![3
CD]"
655 FORT=255TO0STEP-4
656 POKE54277,26:POKE54278,32:POKE54276,16:POKE54273,T:POKE54272,T:POKE54276,33
657 NEXTT:POKE54276,32:POKE54278,0:POKE54277,12:POKE54273,20:POKE54276,129
663 IFN>HITHENHI=N
665 PRINT"[YEL]FINAL SCORE: [RED]"N*10"[CD]":PRINT"[GRN]HIGH[2SPC]SCORE: [RED]"H
I*10"[4CD]"
670 FORZ=1TO3000:NEXT:POKE54276,0:PRINT"[PUR]PLAY AGAIN (Y/N)?"
680 GETP$:IFP$="N"THEN700
685 IFP$="Y"THEN112
690 GOTO680
700 PRINT"[3CD][CYN]BYE![WHT][2CD]":POKE54296,0:CLR:END
800 POKE54296,15:POKE54277,0:POKE54278,128:POKE54273,72:POKE54272,169
805 POKE54276,33:FORZ=1TO200:NEXT:POKE54276,32
810 PRINT"[CLS]":POKE53280,4:POKE53281,10
820 PRINT"[HOM][21CD][22CR][BLK][REV][G<D][G<F][G<D][G<F][7CR][OFF][YEL][G>-]"
830 PRINT"[3CR][RED][REV][G>\][G<*][OFF][G<P][G>L][4CR][PUR][REV][G>\][4SPC][G<*
][OFF][5CR][BLK][REV][G<C][G<V][G<C][G<V][6CR][YEL][G>\][G>Q][G<*]"
840 PRINT"[3CR][RED][REV][G<C][G<V][G<C][G<V][OFF][4CR][PUR][G<M][G>+][REV][G<D]
[G<F][OFF][G>+][G<G][5CR][BLK][REV][G<D][G<F][G<D][G<F][5CR][YEL][G>\] [G<D] [G<
*]"
```

ILLUSTRATION: ANDREW PAINTER

by Neil Phillips




```
850 PRINT"[3CR][RED][REV][G<C][G<V][G<C][G<V][OFF][4CR][PUR][G<M][REV] [OFF][G<K
][REV][G<K][REV] [OFF][G<G][5CR][BLK][REV][G<C][G<V][G<C][G<V][5CR][YEL][2SPC][O
FF] [REV][2SPC][HOM]"
860 PRINT"[HOM][2CD][WHT][24CR][G>U][G>*][G>I]"
865 PRINT"[WHT][11CR][3CD][G>U][G>*][G>I]"
870 PRINT"[WHT][10CR][3CD][G>U][G>*][G>I][3CU][9CR][G>U][G>K] [G>J][G>I]"
880 PRINT"[WHT][9CR][3CD][G>U][2G>K][G>J][G>I][3CU][8CR][G>J][3G>R][G>K]"
885 PRINT"[WHT][9CR][3CD][G>U][G>K][G>U][2SPC][G>J][G>I]"
886 PRINT"[WHT][9CR][G>J][5G>R][G>K]"
887 PRINT"[RED][12CR][G>J][G>R][G>K]"
890 PRINT"[RED][12CR][G>N][G>-][G>M]"
890 RETURN
1000 POKE53280,6:POKE53281,3:PRINT"[CLS][CD][14CR][REV][RED]SKILL LEVELS[2CD][BL
U]"
1010 PRINT"PLEASE SELECT A SKILL LEVEL BY PRESSING THE APPROPRIATE NUMBER.[2CD]"
1020 PRINT"[2CR][RED]1)[3SPC][YEL]SLOW[CD]"
1025 PRINT"[2CR][RED]2)[3SPC][YEL]MEDIUM[CD]"
1030 PRINT"[2CR][RED]3)[3SPC][YEL]FAST[CD]"
1035 PRINT"[2CR][RED]4)[3SPC][YEL]VERY FAST[CD]"
1040 PRINT"[2CR][RED]5)[3SPC][YEL]SUPER FAST"
1100 GETS$:IFS$=""THEN1100
1105 IFS$<"1"ORS$>"5"THEN1100
1110 IFVAL(S$)=1THENP=90
1120 IFVAL(S$)=2THENP=60
1130 IFVAL(S$)=3THENP=40
1140 IFVAL(S$)=4THENP=20
1150 IFVAL(S$)=5THENP=0
1200 M=3:N=0:RETURN
20000 PRINT"[9CR][BLK][REV]PRESS <RETURN> TO START[3CU]"
20010 GETA$:IFA$<>CHR$(13)THEN20010
20020 PRINT"[CLS]":RETURN
```

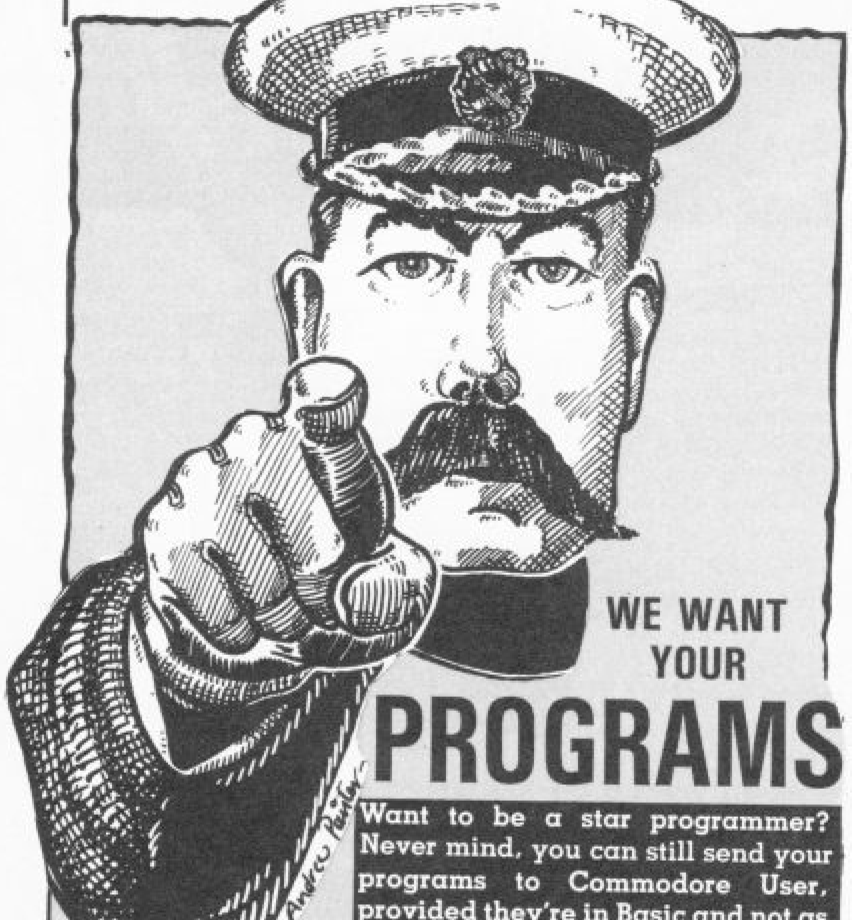
PROGRAMS

by Michael Birks

DOT RACER — FOR THE COMMODORE 16 AND PLUS/4

A nice-and-easy program for you to type in. The game itself is pretty simple to play, too. Use the 'Q' and 'P' keys to steer your dots between the perilously twisting and winding tracks. One nice point is that you can set the width of the track at the beginning, up to 20 spaces — and down to as little as you can manage.

```
10 SCNCLR
20 COLOR0,1:COLOR1,2:COLOR4,1
30 CHAR1,10,10,"DOT RACER"
40 CHAR1,10,11,"  BY M.BIRKS."
50 CHAR1,10,15,"PRESS ANY KEY"
60 GET A$:IF A$="" THEN 60
70 LET L=10
80 LET S=0
90 LET M=200
100 SCNCLR:CHAR1,5,10,"ENTER WIDTH OF TR
ACK"
110 INPUT W
120 LET W=INT(W/2)
130 LET L=10
140 LET Y=W
150 LET R=W
160 D=INT(RND(1)*3-1)
170 IF L+D<0 OR L+D>20 THEN 160
180 LET L=L+D
190 LET Y=Y-D
200 LET R=R+D
220 LET N=L
230 GOSUB 1000
240 PRINT "▌";
250 LET N=Y
260 GOSUB 1000
270 PRINT "●";
280 LET N=R
290 GOSUB 1000
300 PRINT "▌"
310 GET I$
320 IF I$<>"Q" THEN GOTO 350
330 LET Y=Y-1
340 LET R=R+1
350 IF I$<>"P" THEN GOTO 380
360 LET Y=Y+1
370 LET R=R-1
380 IF Y<1 OR R<1 THEN SCNCLR:CHAR1,10,1
0,"YOU CRASHED!":STOP
390 LET S=S+1
400 IF S<M THEN GOTO 160
420 SCNCLR:CHAR1,5,10,"YOU MADE IT!":STO
P
1000 IF N=0 THEN RETURN
1010 FORI=1 TO N
1020 PRINT " ";
1030 NEXTI
1040 RETURN
```



WE WANT YOUR PROGRAMS

Want to be a star programmer? Never mind, you can still send your programs to Commodore User, provided they're in Basic and not as long as a telephone directory. We'll consider anything on tape or disk for the Vic, 64, 16 and Plus/4. You could earn yourself a handful of fivers. Entries to: Readers Programs, Commodore User, 30-32 Farringdon Lane, London EC1R 3AU.

DISK DIRECTORY PRINTER — FOR THE COMMODORE 64

by Frank Rooney

Do you get a lot of headaches with your floppy disks, trying to keep an up-to-date record of what you've got on them? Here's the answer: a program that lets you print out a disk directory with a single keystroke — no need to mess about with those boring print commands. Remember, when you're keying in the listing, you must type '#' whenever you see the '£' sign.

```
100 POKE53280,6:POKE53281,6:PRINT"[CLS][WHT]"
110 OPEN4,4:PRINT£4,CHR$(27);CHR$(79)
120 PRINT"[CLS][CD][WHT]";TAB(9);"DISK
    DIRECTORY PRINTER"
130 PRINTTAB(12)"[CD]BY FRANK ROONEY"
140 PRINT"[7CD][3SPC][REV] PRESS <SPACE> WHEN
    DISK IS LOADED [OFF]"
150 GETZ$:IFZ$=" "THEN170
160 GOTO150
170 PRINT"[CU][38SPC]"
180 OPEN15,8,15,"I0":CLOSE15
190 OPEN1,8,0,"$"
200 GET£1,A$,B$
210 GET£1,A$,B$
220 GET£1,A$,B$
230 C=0:IFA$<>""THENC=ASC(A$)
240 IFB$<>""THENC=C+ASC(B$)*256
250 PRINT£4,C;SPC(5-LEN(STR$(C)));:IN$=""
260 GET£1,B$:IFST<>0THEN330
270 IFB$<>CHR$(34)THEN260
280 GET£1,B$:IFB$<>CHR$(34)THENIN$=IN$+B$:
    GOTO280
290 C$="":GET£1,B$:IFB$=CHR$(32)THEN290
300 C$=C$+B$:GET£1,B$:IFB$<>""THEN300
310 PRINT£4,CHR$(34);IN$;CHR$(34);
    SPC(22-LEN(IN$))C$
320 IFST=0THEN210
330 PRINT£4,"BLOCKS FREE"
340 CLOSE1:FORZ=1TO10:PRINT£4:NEXTZ:GOTO120
```

U.S. MAIL

Dan Gutman reports

Waiting for the next phenomenon

This month, Dan Gutman pauses for thought and ruminates (with a tear in his eye) on his country's loss of enthusiasm for the art of zapping. Will those computers stashed away in the all-American closet ever see the light of day again?

I'd like to talk about a subject that is near and dear to us all — computer games. Looking over this fine magazine every month (those nice *Commodore User* people send it airmail), I can see that you folks are still computer game *freaks*. It seems like there are hundreds of computer game companies over there, and they're cranking out thousands of titles. It's obviously your passion, your reason for existence.

I find that very interesting, because *this* side of the Atlantic, computer games are as dead as a doornail.

The year of the Pacman

When the Pac-Man phenomenon struck in 1981, I was impressed enough to start a magazine — you might have seen it — called Video Games Player. It was a very exciting time over here. *Everybody* was going to the arcades and playing video games,most for the first time in their lives.

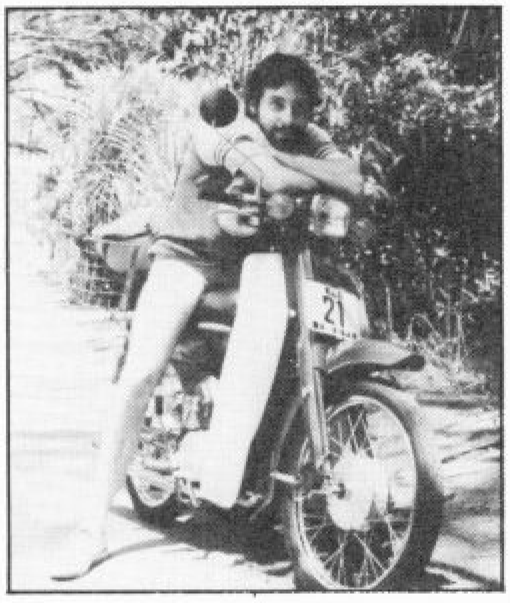
And the dimes came rolling in. In 1981, video games brought in more money here than professional baseball, football and basketball combined. More money than we spent on movies and records combined. More than twice the take of all the casinos in America combined. It was the biggest thing since the hula hoop. (Did you have them?) There were video game books, magazines, and movies.

To me, video games were an exciting technological innovation. It was hard to believe — not only could we watch stuff moving on the screen, but we could *control* it too! This was amazing way back in 1981. I felt like I was participating in the birth of a new medium. This, I marvelled, must have been what it was like when radio and television were first invented.

A year later, the manufacturers got an even brighter idea — "Let's take these hit arcade games and turn them into cartridges that people can play on their TV sets at home!" It was a phenomenon all over again. Atari sold 15 million of their 2600 game systems, and games like *Space Invaders, Asteroids,* and especially *Pac-Man* sold in the millions. American youth was in love with video games. Parents hated it, just like they hated comic books, rock and roll, and breakdancing. Because the "older generation" hated video games, you just *knew* video games were cool!

Death of zap

Then a curious thing happened — video games dropped off a cliff. Here I was touting them as the next great art form, and they completely died. People stopped going to the arcades. The game systems and cartridges stopped selling. Every week a different software company or video game magazine would go out of business. Video games, as it turned out, are just a fad.



But all was not lost. It wasn't so much that video games were dead. They were just *replaced* — by the computer! The first home computers had hit the market, and though they were like toys compared to the computers coming out today, they were a lot better than video game systems. For one thing, they had keyboards, which added a dimension to gaming and allowed us to program our own games. And computers, besides playing games, could do a whole load of other things, like: word processing, run educational programs, maintain mailing lists, and do a hundred other things. Why would anybody buy a video game system when they could get a real computer for about the same price?

Birth of a legend?

The computer — specifically the Commodore Vic-20 and the Commodore 64 — became the next phenomenon. Suddenly every family in the United States wanted to put a home computer in the living room. It became the latest home appliance. Time Magazine named the computer as its "Man of the Year" in 1982 (the first time in history a human being did not receive the honour).

Suddenly "video games" were out and "computer games" were in. America fell head over heels in love with the computer. Even *parents* loved computers — they're educational, they're fun, and besides, the guy down the street has one so *we* should have one too, Marge.

Hiding the evidence

That brings us up to today. A lot of those people who bought computers a few years ago have stashed them in their closets. They became confused. A computer is a cool machine, but when you bring it home, plug it in and turn it on, *it doesn't do anything*! When you turn a radio on, you hear something. When you turn a TV on, you hear something and *see* something — even if it's only Dallas. A computer just *sits* there. People didn't know what to do. "You mean I have to buy software?" "You mean I have to learn programming?" "You mean I have to spend more money to buy joysticks and printers and disk drives and modems before this computer does anything?"

The American public was given the impression that computers could do lots of amazing things, it could do them hundreds of times faster than a human being, and that they were easy to operate. It just wasn't true! Computer games were very popular here for a while, but it wasn't long before the novelty wore off and they stopped selling. Last October, the magazine — my pride and joy — folded. We had to — most of the companies that advertised in Computer Games had gone out of business.

America is confused about computers and computer games right now. Most people agree that "computers are the future", but they don't know what they would do with one if they had one. While computers have revolutionised the American office, only 13% of American households own computers today. These days, the software bestsellers are music programs, art programs, diet programs, and home finance programs.

And I'm sitting here . . . waiting for the next phenomenon.

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BOOK Corner

The most useful books we've found for the Vic and 64. Most by the founding editor of Commodore User.

Commodore 64 Subroutine Cookbook: David Busch
For would-be programmers everywhere. It's concise and accurate with excellent line-by-line descriptions guaranteed to turn you into an expert.

The Complete Commodore 64: Dennis Jarrett
Another excellent book – covering all the angles of the 64 to help both beginners and experts alike.

Getting the Most from Your Vic-20: Dennis Jarrett
Just bought a Vic-20? Then you'll need this comprehensive, carefully designed book to help get to grips with it.

The Good Computing Book For Beginners (3rd edition): Dennis Jarrett
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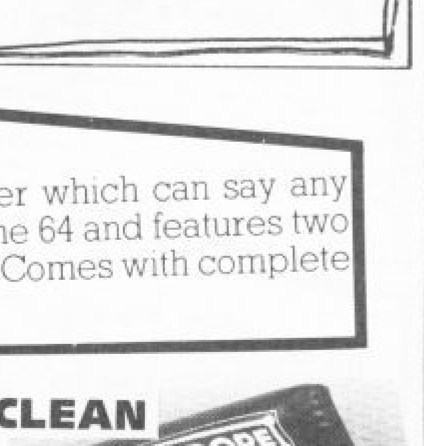
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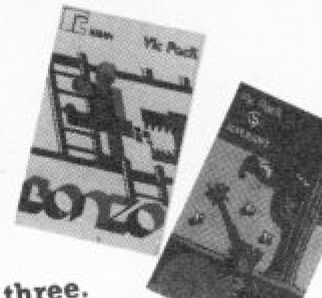
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... for easier programs
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Brilliant idea, though it's simple really; the Cybergram Designs Vic-20 Graphics Aid Pack is a set of overlays and printed sheets on which you can immediately see the POKE locations you need for display and colour; and you can use successive sheets to set up a specific 'storyboard' from which to organise and visualise the sequences in a graphics program.

Your pack includes planner sheets for the standard 22 x 23 screen and plotter sheets for the 1023 x 1023 hi-res graphics using the Super Expander; you also get a set of handy character designer sheets that simplify the construction of your own shapes.

Very neat, very clever – and really useful too ... and at a discount from the normal RRP of £4.50.

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Instant database for your 64 — INFOTAPE

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TOMMY'S TIPS

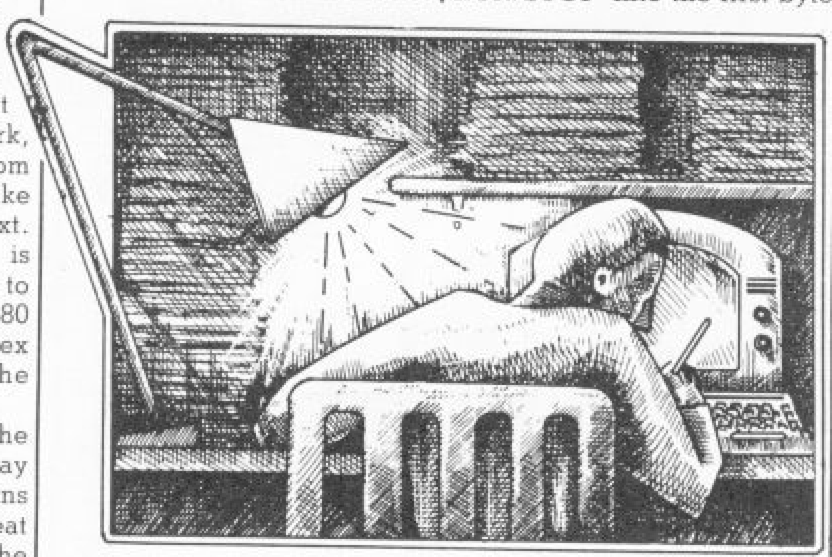
Tommy is Commodore User's resident know-all. Each month he burrows through a mountain of readers' mail and emerges with a handful of choice queries. The result, before you, is a wadge of priceless information and indispensable advice. There's even the odd useful tip as well.

***Dear Tommy,* Could you please inform me if it is possible to obtain an 80-column card which can be used with my Easyscript?**

All I have seen advertised only work with their own program and to change will involve me in a great deal of work and cost, leaving an otherwise terrific program lying idle. Any help you can give me will be gratefully accepted.

Unfortunately I do not think you will find any commercial 80-column board that will allow you to use the Easyscript. This is because of the way that the 80-column boards work, which is totally different from the way that a program like Easyscript will print text. Even 'Paperclip', which is identical in every respect to 'The Word', will not run in 80 columns using the Impex board even though 'The Word' does.

While I can recommend the Impex system, there is no way you can get 80 columns without, as you say, a great deal of time and money. The only ray of hope I can offer is to wait and have a look at the Commodore 128 when it appears. Although you still cannot run Easyscript in 80 columns under the '64' mode, there *is* an 80-column option in '128' mode. Now if someone produced a WP program which could read Easyscript files while in '128' mode and reformat them . . .! (Software houses, are you listening!)



***Dear Tommy,* I have just recently purchased a Commodore 64 and I think that it is an excellent machine. However it will not load any game which has a superfast or any other speed loading system. There is nothing wrong with the computer because I have normal games that load first time. What can I do? Are there any POKEs or routines that will overcome this problem? I would be very pleased if you could solve the problem.**

This is not an uncommon problem; I have suffered exactly the same thing myself. There is no way you can POKE your way round it because the problem appears to be one of compatibility between the computer and the datasette. The brand new (wide) versions of the datasette seem to work well, older types less so and a very old recorder is unlikely to work at all with Turbo loaders. Even this is not definite, some older recorders load better than some newer ones, but changing the tape recorder *does* make a difference, despite what Commodore say. I suggest you see your dealer if the computer and recorder are both under warranty and try loading a Turbo program in the shop. If it won't load, then the system is not suitable for the purpose for which it was bought and he should change either the computer or the recorder for one which will load *all* suitable programs.

***Dear Tommy,* As a Vic-20 user I occasionally develop multi-part programs by using POKE 198, 1:POKE 631, 131 to load and run the next part of the program, thus discarding redundant data to conserve memory. Could you please explain in detail how these POKE commands work?**

A limitation of the above 'POKEs', however, is that the whole current program is erased and any data required later has to be re-entered in the next program. Is there a way of putting data from the current program into a reserved area of memory and then retrieving that data for later use in the next, or subsequent program?

What you are doing is to poke the ASCII value for 'SHIFT RUN/STOP' into the first byte of the keyboard buffer (POKE 631, 131) and then set the 'no of characters in buffer' to 1 (POKE 198, 1). The effect is as if you had typed 'SHIFT RUN/STOP' directly from the keyboard; it will load and run the next program, as you have discovered. Unfortunately, because you are RUNning the next program, all the variables are cleared. A much simpler way is to have a program line 100 LOAD "FILENAME", which will have exactly the same effect of loading and running a program from tape, with the advantage that variables are not reset.

If you want to preserve the contents of arrays then you have to ensure that certain conditions are satisfied. Firstly, the initial program must be bigger than any subsequent program; this can be achieved artificially by setting addresses 45 and 46 to suitable values. Load the largest program of the suite and print the values of addresses 45 and 46 after the program has run. Now add the following line at the start of the initial program, replacing X and Y with the values you obtained:

10 POKE 45, X+50: POKE 46, Y:CLR

(The extra 50 is merely to guard against a slight increase in the size of the biggest program, but if you make a large change then check the values again.)

Secondly, the array names must be the same in all the programs and the arrays must *only* be dimensioned in the first program. Following these guidelines will ensure that data is preserved from one program to the next.

***Dear Tommy,* Please could you tell me if and how it is possible to achieve sound input (for voice recognition etc) on the Commodore 64.**

There are a couple of products on the market which will allow voice recognition on the 64. The first is 'Big Ears' from William Stuart Systems Ltd. It costs £56.35 and is quite effective; I use one myself and it's great fun! The second product is both a voice input and output device; you can actually record your own voice (or any other sounds for that matter), then play it back under software control. It is called 'Voice Master' and is produced by Covex Inc, Oregon, USA. Although the dollar/sterling fluctuations may be affecting it, it costs around £90 and you should be able to get details from the UK importer, Anirog.

***Dear Tommy,* I have one or two questions to ask. First of all I am writing a clock program. CT = date, NM = month, LL = year.**

```
60 PRINT 'CLR'
70 PRINT 'TI$'
80 PRINT CT '/' NM '/' LL
90 IF TI$ = '000000' THEN
110
100 GOTO 60
110 FOR R = 1 TO 60
120 CT=CTH: NEXT R
```

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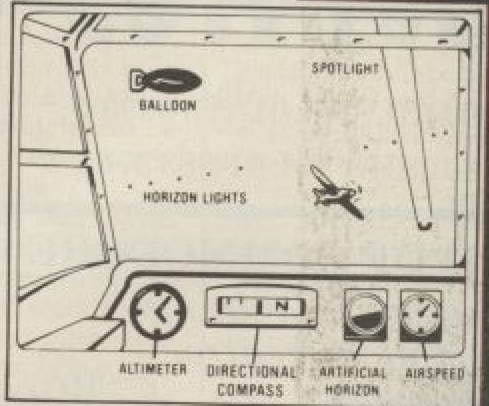
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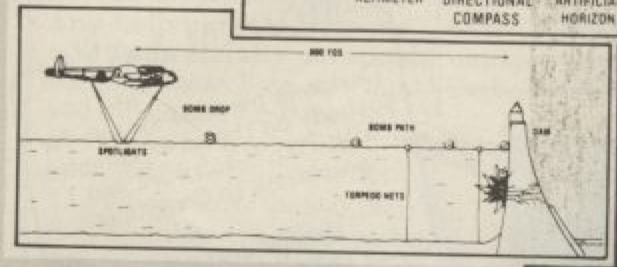
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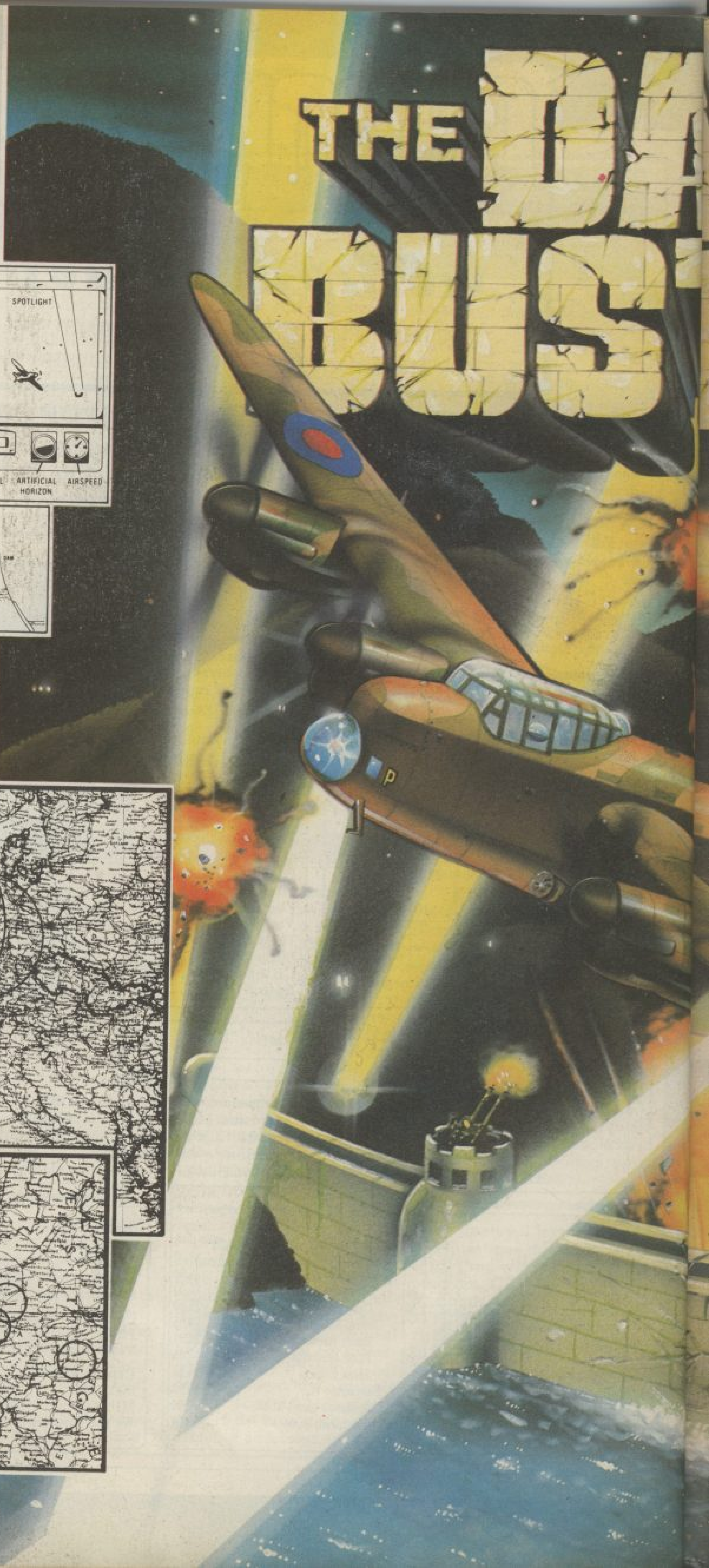




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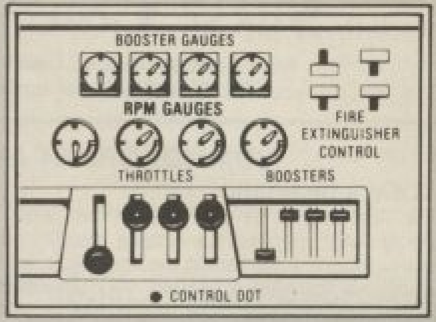
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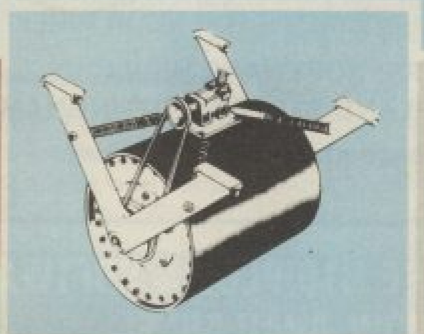
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TOMMY'S TIPS

```
130 IF CT<32 THEN 60
140 CT=1: NM=NM + 1
150 IF NM<13 THEN 60
160 NM=1: LL=LL + 1
```

Why should CT jump one first time TI$ = '0000000', and then jump two every time after that. I am at my wit's end.

Secondly, as I am thinking of building the home controller covered by your magazine, do you know if there could be any damage done to the Commodore 64 if I left it powered up 24 hours a day?

There are two problems with your program; firstly you have got **CT = CT+1** *inside* a loop which will take its value over 60 every time. Secondly, even if you took the **CT = CT+1** outside that loop it would still not work because you are testing **TI$** each time. **TI$** only alters once every second whereas Basic, slow as it is, will go through the lines 60-90 several times in one second, hence the jump.

What you need to do is test the clock variable **TI**, which alters 60 times every second. By testing to see if **TI** is near 0 you will get the effect you want. Note that you cannot test if **TI=0** because you might not do the test at the exact time; **TI** is constantly changing. Your program also does not take account of the differing numbers of days in each month.

The following program is based on yours, but steps correctly for each month as well (line 20 is merely to set the initial date). By using strings instead of variables you do not have to clear the screen each time, since the positions of the numbers are always the same; this avoids the annoying flicker you get when clearing the screen each time. I leave it to you to add the necessary code to check for leap years!

```
10 DIMDAYS (12)
15 FORA=1 TO 12:
READDAYS (A): NEXTA
20 CT=1: CT$=" 1":
NM=1: NM$=" 1":
LL=1985: LL$="1985"
60 PRINT [CLS]
70 PRINT [HOM]; TI$
80 PRINTCT$; "/"; NM$; "/";
LL$
90 IF TI<2 THEN 110
100 GOTO 70
110 CT=CT+1: IFCT>
DAYS (NM) THEN CT=1
120 CT$=RIGHT$ (STR$
(CT), 2)
130 IF CT>1 THEN70
140 NM=NM+1: IF NM>12
THEN NM=1
150 NM$=RIGHT$
(STR$(NM), 2)
160 IF NM>1 THEN 70
170 LL=LL+1
180 LL$=RIGHT$ (STR$
(LL), 4): GOTO 70
1000 DATA31, 28, 31, 30, 31,
30, 31, 31, 30, 31, 30, 31
```

On your second query, there is no reason why your computer cannot stay switched on 24 hours a day, 7 days a week provided you take sensible precautions:

- do not keep either the computer or the transformer inside an enclosed space; ensure there is plenty of air circulation;
- for the same reason, do not keep any form of cover over the computer or leave anything laying on top of the transformer;
- ensure that the fuse in the mains plug is of the correct rating (1 amp);
- do not leave the computer where it is in bright sunlight.

Dear Tommy, **My Vic-20 will not accept programs which are published in your magazine from the keyboard although it will accept games from the cassette. In your column (October '84) you suggested a program to check a faulty RAM chip. Every time I type in this program I get an error message.**

I returned my Vic to the dealer and asked them to check it, explaining the problem. They returned it with a job card which read as follows: "This computer has been checked with programs from the user's manual and no fault has been found'.

I again tried the above program and got the same reply on the screen. How do I find out if my computer is working properly, please help!

I am afraid you have typed the program exactly as printed without noticing the 'control commands' are like the *Victuals* listings. [CLR] means 'press the SHIFT key and the CLR/HOME key'. Likewise [CUR UP] means press the 'cursor up' key. On checking the printing I did notice one error; line 50 should have a 0 between <> and THEN. If you make these changes the program will run correctly.

Dear Tommy, **I am thinking of buying the 'Big Mouth' speech synthesizer for my Commodore 64 and I wondered if you could tell me if it works with the Simon's Basic cartridge?**

I am afraid that *Bigmouth* resides in an area of memory used by Simon's Basic so you cannot use the two together. I doubt you will find a speech synthesizer that *will* work, with the possible exception of Commodore's own *Magic Voice*. However, that is a lot more expensive even if it were generally available. At £7.95 I don't think you will beat *Bigmouth*, compatible or not.

Dear Tommy, **I have had a Vic-20 for over two years now and there is one topic which puzzles me. What exactly are 'turtle graphics'?**

'Turtle Graphics' is the name commonly given to the graphics drawn by using LOGO type commands. LOGO is a language which uses a small graphic 'turtle' to draw lines on the screen by giving commands such as **FORWARD 10 RIGHT 90 FORWARD 10** which will draw a right angle. Similar commands can be made into a sequence to draw almost any shape, including circles. In reality, the 'turtle' is just a symbol on the screen to show you the current position of the pen. If you haven't already done so, read the review of LOGO and the Valiant Turtle in the March issue.

Dear Tommy, **Please could you give me your views on disassemblers and monitor programs for the Commodore 64? I wish to buy a disassembler monitor utility but have no idea how good any of them are. I have a price limit of £50 but would be prepared to go over that for excellence.**

I assume you mean an assembler, disassembler and a monitor program, these being three distinct features. An assembler allows you to write a machine-code program using mnemonics (eg LDA x) instead of using Hex or decimal values, plus many other useful facilities such as labels which save you having to manually calculate jumps etc. The assembler then converts the program into true machine-code.

A disassembler does exactly the reverse, turning the decimal values into readable mnemonics and operands (the latter being the numbers that follow the mnemonics). A monitor normally allows you to write, edit and run your m/c program in much the same way as the Basic editor, plus allowing you to display register values and memory addresses.

Since there are always risks of crashing irreparably when developing machine-code you would be better going for a cartridge based program such as Audiogenic's Monitor (£29.95) or Mikro from Supersoft (£59.80) since you will not have to go through the bother of reloading the monitor each time, just your own program.

Having said that, however, Commodore's own machine code development system (£24.95) is very good, even though it is disk based, especially when used in conjunction with their 'Assembler Tutor' program (£29.95).

There is also the Dr Watson 'Beginner's Assembly Language' which at £12.95 for the tape and book is ideal for the novice. Lastly, Zeus-64 from Design Design is a reputedly excellent little assembler/monitor at only £9.95.

For more detailed comments on some of the programs mentioned, look at the review in the January issue called 'Going into Assembly'.

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WARNING

It is illegal to sell pirated copies of computer games. The only software that can be sold legitimately through our classified section are genuine tapes, disks, or cartridges bought from shops or by mail order from software houses. *Commodore User* will press for the maximum penalties to be brought against anyone breaking these rules. We regret that due to large-scale swapping of pirated software we can no longer allow swaps of tapes, disks, or cartridges in our classified section.

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Vic 20 C2N tape recorder 16k Ram over £100 of games including Gorf, Jet Pac and Flight Path 737. Also joystick and games book. All for £110 ono. Phone: Sturminster Marshall 857493.

Computer disks and tapes for sale. AGFA Ferric tapes only 25p (C15). Other sizes available. High quality sentinel disks — double sided for £1.60 each — single sided for £1.30 each. Ring Richard on Stevenage (0438) 64485 after 7.00pm.

CBM 64 user wanted as pen-pal for exchange ideas and programs, all letters answered, also wanted details of System 15000 (help!!). Write to: Ian Cunningham HQRA, 3 Armd Div, BFPO 106 (by letter disk or tape!).

Vic 20 24K 3 slot motherboard, forth, Vicfile database, programmers aid cartridge, books (Vic Revealed, Programmers Reference Guide, Assembler Tutorial). Will sell individually. Phone Ruislip 32649 or write to L. Graham, 6 Glenfield Crescent, Ruislip, Middlesex HA4 7PF.

CBM 64 user requires second hand printer. Also Gemini business software on tapes wanted — either swap with games or reasonable price. Ring 01-427 8158 evenings.

Wanted: printer and paper, compatible with Vic 20, disc drive, joystick or 16K expansion for Vic 20 also required. Phone Uppingham 823497, or write Stonecroft, Lyddington, Rutland LE15 9LF.

64 Software cheap! Flight Path 737, The Pyramid, Revelations, Cosmic Cruiser, Rtty Radio, program the lot for £6.00. ICL green screen monitor composite video not bad £10.00. Tel. 051 423 5493, Saturdays only! or mailbox BM4 Compunet.

Commodore Printer MPS 1256 costs £354 but will sell for the price of an MPS 301 only £199 ono. Ring Ian 595 8822

CBM 64 C2N cassette, for sale, fully boxed, instructions included, joystick reference guide, assembler course, three games, quick sale required. Bargain £195. Tel. 021-358 7452 Birmingham after 5pm — John.

Vic-20 C2N 16K switchable Ram Pack, Introduction to Basic 1, 15 top games, Perils of Willy, Jet Pac etc., all the leads, plus Quickshot II, Joystick. As good as new. Phone Cov 610325. £160 ono.

Software writer would like to hear from anyone able to write music on the 64, especially anyone who could re-arrange rock and pop tunes. Please write to Stephen Howard, 53 Valley View Road, Rochester, Kent or phone 0634 812833.

Infocom EPYX/CBS Datasoft Atarisoft, Access, English software, Melbourne House, US-Gold, Synsoft/Synapse, Ocean, Activision, Alligata, Software Projects, Honey Fold, Highlight Software sale. Ring Niki at 01-748 1809 5-10 p.m.

Irish readers. Swap Pirate's Cove and Mutant Herd cartridges for any other two cartridges or 16K Vic-20 cassette game. Write to Albert Plattner, Springfield, Tramore, County Waterford, Ireland.

C64 Easy Script — £30. Future Finance — £30. All brand new, boxed, all on disk. Also six games — £5. Phone 021-777 6756 — Belfield, 11 Knutswood Close, Kings Heath, Birmingham B13 OEN.

AD INDEX

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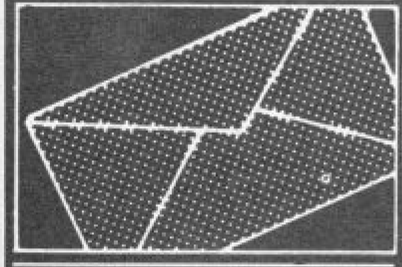
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It is illegal to sell pirated copies of computer games. The only software that can be sold legitimately through our classified section are genuine tapes, disks, or cartridges bought from shops or by mail order from software houses. *Commodore User* will press for the maximum penalties to be brought against anyone breaking these rules. We regret that due to large-scale swapping of pirated software we can no longer allow swaps of tapes, disks, or cartridges in our classified section.

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LETTERS

This is your page: normally we write for you, but here we listen. Feel free to let us know what you think — about the magazine, about Commodore, about suppliers, about life, art, the meaning of existence or whatever. We don't print everything we receive, of course; but anything that might be of specific relevance or general interest will make it to these pages.



Pic a winner

I have just received the Activision Designer's Pencil program which you were giving as prizes to your competition.

I would like to thank you and Activision for this excellent product. I find it very easy to use and I can record my pictures onto my video recorder as titles for my home movies. It makes my films much more interesting.

Once again, thank you very much for my prize and keep up the good work in producing a fab magazine.

Brian Le Lion,
Thornbury,
63 Stopford Road,
St Helier,
Jersey.

Group for plotters

I am trying to start a user group for the Commodore 1520 printer/plotter with the aim of exchanging programs, hints/tips etc. I would be grateful if you could mention this on the Letters page of your magazine.

Anyone interested should contact me at the address below (s.a.e.) or on: Prestel Mailbox: 782279612; Compunet Courier: SCB 1.

If anyone has any programs they can send them to me on a disk or cassette and after I have collected a number of programs it will be returned to them with the new programs recorded on it.

Steven Birks,
86 Birches Head Road,
Birches Head,
Stoke-on-Trent ST1 6LJ.

Sparkling results

On reading the problem on 'sparkle' with sprites on the 64 in the March issue, I found a solution to overcome it. When you run a sprite program, 'sparkle' will automatically appear on the screen; press Run Stop but *not* Restore and type Run again. The 'sparkle' should disappear.

If you have to break into a program with sprites in it, try not to use Run Stop and Restore, just use the Run Stop key, as then you will have to go about using the method above again.

Also, my friends in school are always complaining about saving sprites as when they load them back in, a funny shaped sprite appears. This can be overcome if you do not run the program before you save it or type in this line:

POKE 53269, 0 : SAVE "PROGRAM NAME"

and you will get perfect saves.

Bryn Refail,
Gwyddelwern,
Corwen,
Clwyd.

Sweet sixteen

I bought a Commodore 16 for my 13-year-old daughter, who has outgrown her Sinclair ZX81, and I have also purchased a Commodore Plus/4 for myself. We both enjoy programming in the games from the C16 Games Book, by Melbourne House, although the ZAPP game will not work on the C16 as it runs out of memory. The CHEX-SUM routine, used in the book, has proved very useful to us as 'first-time' users, and other publishing houses would do well to follow their lead.

I found *Commodore User* to be the best magazine I have read and was pleased to see that the program listings were easily readable, unlike other magazines who, to save space, have reduced the image size so much that the listings appear to be just a lot of dots on the page.

One question before I close: do you know if any of the software houses plan to bring out any games software or books specifically for the Plus/4?

Mrs Cherie Sell,
31 Milton Avenue,
Margate,
Kent CT9 1TS.

● Since the 16 and the Plus/4 are compatible, software houses will obviously prefer to work on the 16, thereby killing two birds with one program. Whether the Plus/4 will spawn software in its own right remains to be seen. It looks doubtful, though, with the 128 all set to appear in the summer.

Cut-price blues

I have recently purchased a Commodore Plus/4 computer, on 10th January 1985, and I'm absolutely sick to find the same computer some five or six weeks later at half price. Is Commodore UK going to give people like myself credit notes for £150 which are redeemable as part payment for other Commodore products?

I have now been caught paying twice the value for a computer, in future I shall be extra careful that I don't get caught again.

D. T. Giddings,
99 Lesney Park,
Erith,
Kent.

A radio ham writes

May I congratulate you on your new 'Micro-Wave radio' series published in your March issue. As a keen short-wave listener I found the article most interesting. I await the forthcoming articles with interest. I myself own a Commodore Vic 20 +16K and a 1541 disk drive. At the moment I am considering buying a Commodore 64. I also own a ZX81 +16K which I use for decoding morse code signals received via my communications receiver.

I am 20 years of age and a keen short wave listener, though I do intend in the near future to sit the radio amateur exam and hopefully obtain an amateur radio licence. My interests are in the use of computers in amateur radio, particularly the Vic-20 and Commodore 64 in the following fields: log checking, propagation prediction, decoding cw, radio teletype decoding, receiving of sstv via a computer and the tracking of satellites as well as the decoding of their transmissions using a computer.

I would like to hear from any readers who are interested in these fields and are already using their Vic-20 or Commodore 64 computers in any of the fields I have mentioned. I would like them to get in touch with me with a view to exchanging information on programs, program listings, circuit diagrams for interfaces, as well as items of sw and amateur band news.

Steven Smith,
The Signpost,
High Road,
Whaplode,
nr Spalding,
South Lincs.

Micronet Talkback

I'd just like to say thanks for the Happy Hacker page in your excellent mag. Can you put more info on Compunet, as I find it very expensive in connect time to use, but would like to know if they are speeding it up. Thanks again.

Alan Hampton,
15 Avenue Gardens,
Margate,
Kent.

● This message was posted on Micronet's Talkback page. HH reckons that Compunet's new and faster software came into operation last month — it doesn't seem to have made much difference.

Send your letters to
Commodore User,
Priory Court,
30-32 Farringdon Lane,
London EC1R 3AU.


COMMODORE User
Free games to type in by: Jeff Minter, Tony Crowther, Mike Singleton, Dave Collier, Richard Leinfellner, Tony Gibson and Mark Harrison, and Jon Williams.
FREE GAMES
FROM THE TOP NAMES
This bumper games supplement is COMPLETELY FREE WITH Commodore User — the UK's favourite Commodore magazine.
To make sure of getting your Book of Games from the Top Names cut out this coupon and take it to your newsagent.
Dear newsagent, please order me a copy of the June issue of Commodore User — and every month after that as well. (Delete if not approriate.)
Signed
Address
On sale 26th May
Just 95p

Vic-20 Word Processor. Victext. Powerful word procesor.
Facilities include:- Large text buffer, auto centre text, variable tab, insert, amend, delete, copy, move text, word count, right justify, etc. Fully menu driven with comprehensive easy-to-use instructions. Needs + 16K expansion min. Great value: cassette £6.95, disk £9.45.

Vic-20 Data File. Takes the place of any card index.
Facilities include:- save, loadfile, full sort, print all/part records, amend, delete records, memory remaining, etc. Needs +8K expansion min. Cassette £4.50. Both programs can be used with all direct connect Vic printers inc 1520 printer plotter. Fast delivery by first class mail. Send cheque/PO to: A&C Software, 75 Oakthorpe Gardens, Tividale, W. Midlands B69 2LF.

4040 wanted will pay postage plus insurance. Must have manual and be in good condition. Up to £380.00 with interface, £410.00 without. Ring 01-464 6017 and ask for Mr Anderson.

Vic-20 penpal wanted. I would like to swap tips, information, pokes, etc. Write to me using a program on tape or normal paper at 28 Milton Road, Hoylan, near Barnsley S74 8BD. My name is Stephen Gennard.

Adventure Helpline. The Quest Line — a free service for adventurers. Most popular adventure games covered. Free membership card. Send s.a.e. or phone Colin Loosemore, 29 Rufus Gardens, Totton (0703) 871960 or Tony Treadwell, 41 Fernmill Road, Oxford (08675) 6670.

CBM64 4-slot switchable motherboard — £30. Trippler Centronics interface with 2 metres of cable for Commodore 64 or Vic-20. Works well with Epson and compatible printers — £40. Phone Banbury (0295) 54946 evenings and ask for Graham Chapman.

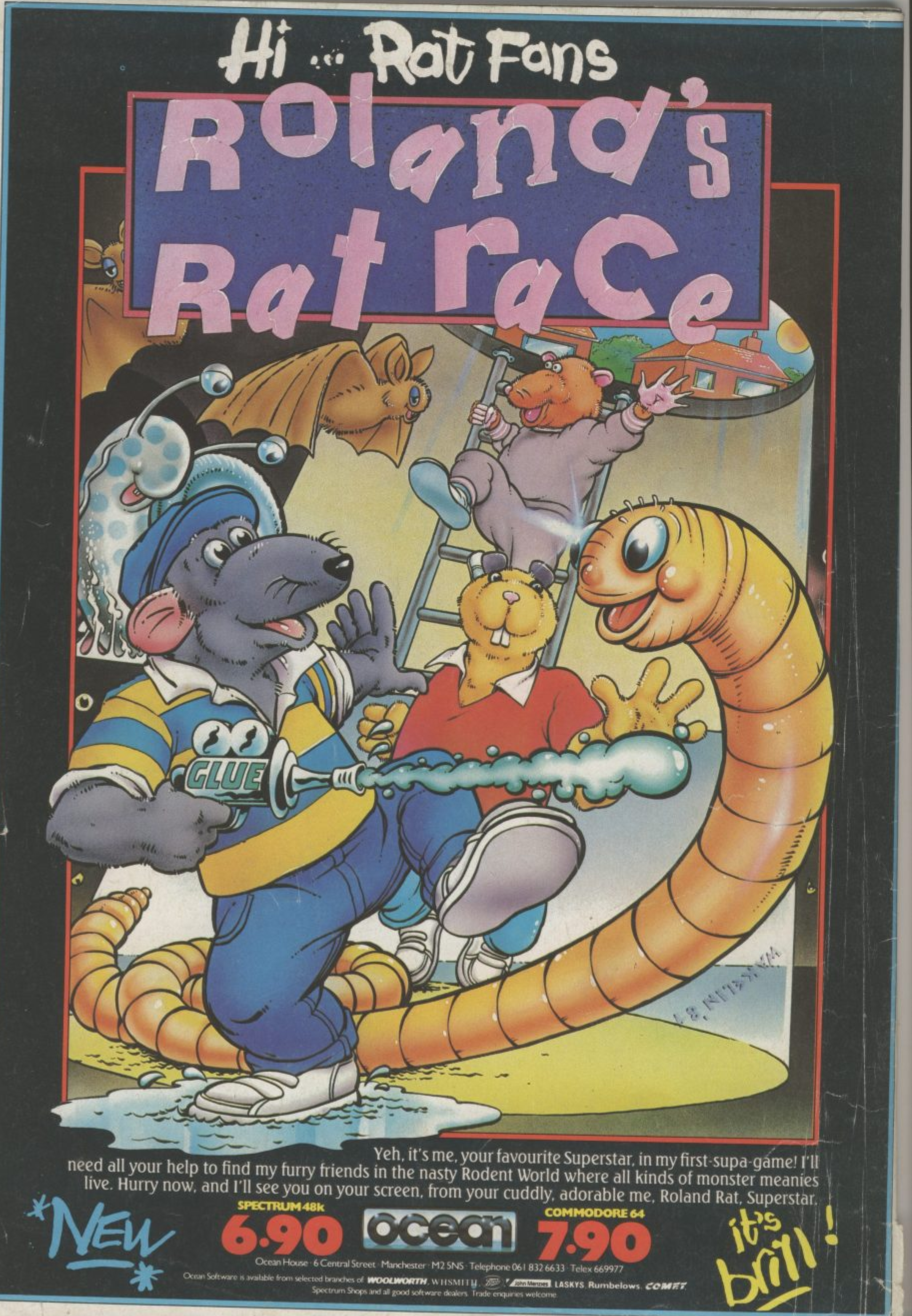
Advice available to Vic and 64 users concerning add-ons. Audio adapter for cassette loading helps locate programs on long tapes, including reset switch for 64. Keeps Basic program in memory when crashed. Looped etc. Wigan 225029 for details.

C16 software. Now available, the game you'll love to hate — 'Pontoon' £4.99 inc. p&p. Send cheque/P.O. to Venturegate Ltd, 17 Harold Road, Leeds 6 1PR (please allow 28 days for delivery).

Vic-20 16K Rampack, C2N cassette unit, programmer's reference guide, joystick and top games: Skramble, Jetpac, Zorgon's Kingdom etc. 1½ years old, good condition — £100 o.n.o. Tel: Pontypool 2008, 6pm (not Monday). Write: 93 Usk Road, Pontypool, Gwent, South Wales NP4 8AF — I. S. Cormack.

CBM64 modem for sale. Four months old, genuine reason for sale — £75 o.n.o. Phone 0903 45902 ask for Ian.

CBM64 disk software for sale. Oxford Pascal, Easy Script, programmer's utilities (CBM). Also Simon's Basic cartridge and Seikosha GP100VC printer (same as 1525) — all excellent condition. Offers to David Swift, 40 Romsey Road, Winchester, Hants.



Hi ... Rat Fans
Roland's Rat Race
GLUE
Yeh, it's me, your favourite Superstar, in my first-supa-game! I'll need all your help to find my furry friends in the nasty Rodent World where all kinds of monster meanies live. Hurry now, and I'll see you on your screen, from your cuddly, adorable me, Roland Rat, Superstar.
NEW
SPECTRUM 48k
6.90
ocean
COMMODORE 64
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it's brill!
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Ocean Software is available from selected branches of WOOLWORTH, WHSMITH, John Menzies, LASKYS, Rumbelows, COMET, Spectrum Shops and all good software dealers. Trade enquiries welcome.